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FORTY NINE GOVERNMENTS

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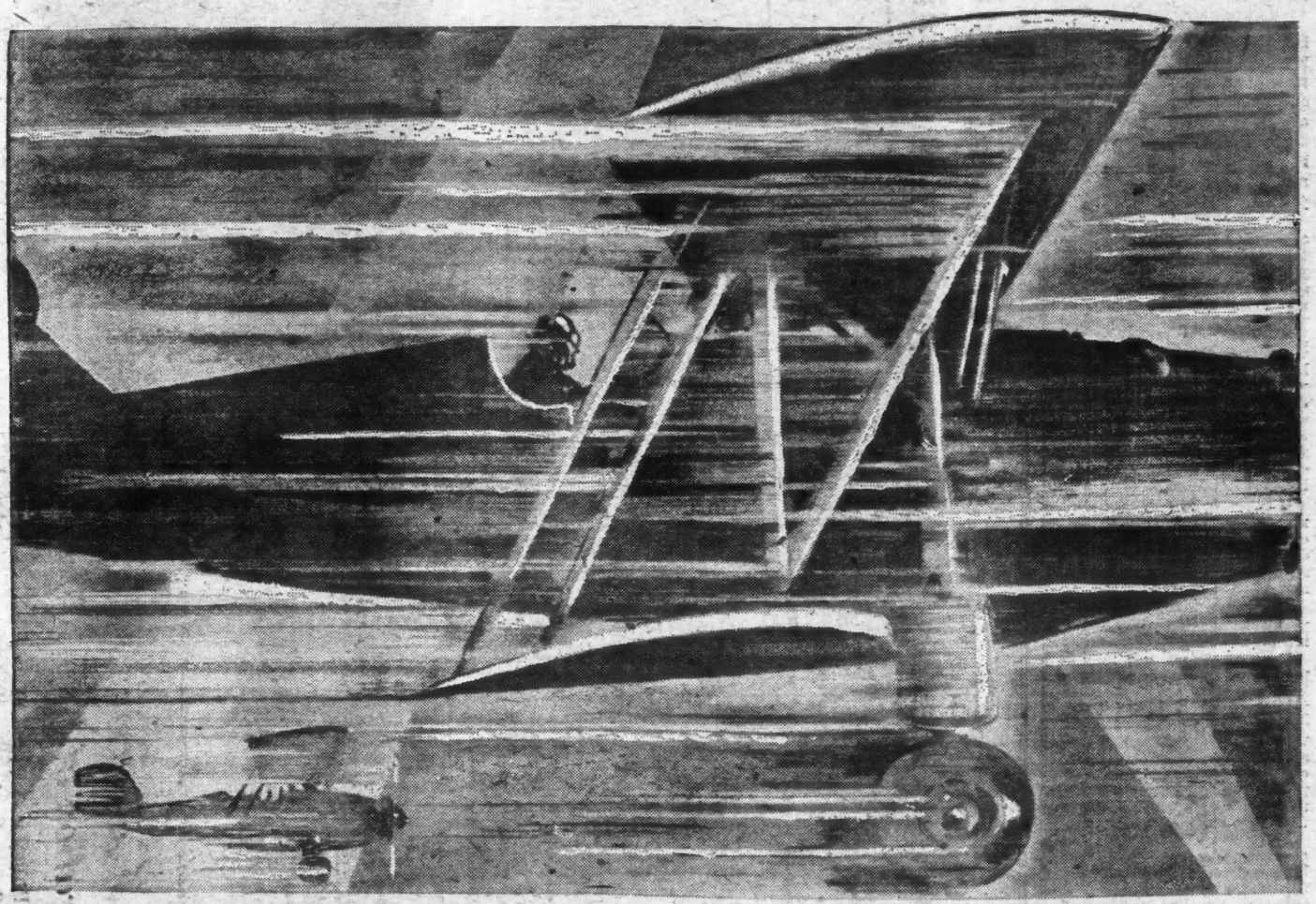

OPPORTUNITY FOR ADVANCEMENT

Aviation, Aided by Experience and Adjustment, Is Making Its Way to New and Significant Position

By HARRY H. BLEE

Director of Aeronautics Development, Aeronautics Branch, Department of Commerce

CONSIDERATION may fittingly be given at this time to the accomplishments of the past year in the field of commercial aeronautics and the outlook for 1930. The entire world is extremely interested in the progress of this industry, which has to do with the development and operation of a vehicle of transportation that is free from the limitations imposed upon surface transportation by topography—a vehicle that is rapidly expanding horizons and reducing the size of oceans and continents to a point where even the most distant nations will soon be next-door neighbors—a vehicle which bids fair to open to every community the gateway to all the great markets and pleasure centers of the globe.

While civil aviation has been in the making since 1919, it is only during the past three years that it has been undertaken in an organized way and upon a comprehensive schedule. During the last half of this three-year period it has experienced a tremendous expansion—an expansion which took place so rapidly that the industry itself could not keep pace with the demands upon it. This naturally brought about the rapid formation of numerous manufacturing units, some of which, doubtless, possess comparatively limited means both as to personnel and finances. Some of these, perhaps, accorded only secondary consideration to the actual economies of production and marketing—their objective being the immediate production of aircraft of a type for which there was then a popular demand. As a result, keen competition has developed and there is now emerging a highly specialized group of manufacturers.

As for the operation phase of the industry, scheduled mileage in the United States now totals more than 90,000 miles per day. In some isolated instances, operators have launched services without adequate surveys, equipment, and financial backing; but air transport organizations as a whole have ample capital available to inaugurate any service for which there can be a possible demand—and to see it through to a successful conclusion. For a number of years, these organizations have been making detailed plans for the transportation of passengers and express as well as mail, and today it is possible to travel over a number of lines almost, if not quite, as cheaply by air as by rail. It now remains only for the air line operators to demonstrate that there exists today, reliable, safe, rapid air transportation; and this they are prepared to do.

Summarizing the present situation, the industry as a whole is making real progress. During the current readjustment period, however, there seems to be a tendency in some quarters to overlook the very substantial increases being made by established enterprises, the large number of totally new enterprises, and the inauguration of numerous operations previously only in project. For example, approximately 22,000,000 miles were flown in scheduled operations by United States air lines during 1929 as against less than 11,000,000 in 1928. Nearly 150,000 passengers and 8,000,000 pounds of mail were transported over these lines in 1929. The passengers carried represented three times as many as were flown the previous year and the increase in the amount of mail carried was 100 per cent. Established route mileage of 36,000 in 1929 was more than double the miles in 1928, and the fact that miscellaneous commercial flying in this country increased from an estimated 18,000,000 miles in 1926 to 130,000,000 miles in 1929 is of special economic significance.

Furthermore, despite the fact that aeronautical exports from the United States for the year 1928 almost equaled the three previous years combined, those for 1929 exceeded the 1928 figures by more than 150 per cent! And the year 1930 should show a further increase. It is interesting to note in this connection that the Bureau of Foreign and Domestic Commerce has just estimated that whereas the United States in 1928 accounted for 17 per cent of the world's total aeronautic exports, in 1929 this Nation's share of the world's international aircraft business increased to 24 per cent.

One hears references every now and then to the great air transport lines in Europe—usually made in a comparative way, which suggests that the United States may not be keeping pace. The fact is, however, that the United States has taken a position of world leadership in the field of air transportation. It should be remembered also that our daily scheduled mileage is now unequaled in any other country. We have night schedules that are simply unheard of elsewhere. We have more than 1,500 private, commercial, and municipal airports and landing fields in operation—with an additional 1,400 proposed for early development. And we have nearly 15,000 miles of airways which will soon be fully equipped with the most modern aids to air navigation — including intermediate landing fields, beacon lights, radio range beacons and radio communication, teletype communication, and weather service, including radio broad-

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ADVICE TO STUDENTS OF AVIATION

By DR. H. J. COOPER

Medical Section, Aeronautics Branch, Department of Commerce

ALL persons desiring to become licensed pilots should bear in mind that while they may pass the physical requirements for student and private pilot licenses, that is no guarantee they will not have difficulty with the physical examinations for limited commercial or transport licenses.

Many former students have been physically disqualified when they applied for limited commercial or transport licenses, and, as a result, considerable misunderstanding and disappointment have arisen. Therefore, the medical section of the Aeronautics Branch desires at this time to disseminate as much information on the subject as possible.

The medical section approves or disapproves a medical examination upon the basis of the grade of license applied for. If a student examination shows that the applicant just barely meets the physical requirements for that grade, he will be qualified for it. However, the medical section can not write the applicant that, while he has been approved as a student pilot, and will be approved later for the grade of private pilot, his examination is unsatisfactory for either limited commercial or transport pilot and therefore he will not be able to reach either of these grades of license as long as his present defects exist.

The reason the medical section can not do this is because it has no way of knowing, out of the total number of student applications received, what students plan to become limited commercial or transport pilots.

There are two fundamental principles that a student should keep in mind when he starts in training.

1. If his sole desire is to become a private pilot for the purpose of flying his own plane when and where he pleases, and if he has no desire to operate commercially, he should take the student physical examination. If satisfactory, this examination will also qualify him for the grade of private pilot when he becomes eligible for the flight test and the written examination for that grade.

2. If a student's sole purpose in applying for a student permit is to become later a limited commercial or transport pilot, he should take the transport physical examination at the start. In this way he will know before he starts his training whether he has any defects which will bar him from qualifying for that grade of license he ultimately desires.

The student who desires to become a limited commercial or transport pilot will not be put to any more expense for medical examinations by following this advice, because, although he pays $15 for the transport examination, this examination includes tests that will not have to be made again no matter how long the interval may be between the date of the examination and the time at which he becomes eligible for the limited commercial or transport license. If he takes the student examination for $10, he will later pay $5 for that portion of the examination not made originally.

The attention of student applicants also is directed to the following:

1. The Department of Commerce maintains two types of physical examination, one for student and private pilot and one for limited commercial and transport pilot. The requirements for student and private pilot are, of course, very much more lenient than those for limited commercial or transport pilot. There is a third type of examination covering industrial pilot, but it is so little used that it will not be mentioned here.

2. Any applicant who has been physically qualified for student pilot on the basis of a satisfactory student examination will be physically acceptable for private pilot at a later date, provided, of course, that his physical condition has not changed adversely in the meantime.

3. Any applicant who has been physically qualified for student pilot on the basis of his having taken and passed a transport physical examination, will be physically acceptable for any grade of license applied for at a later date, again provided that his physical condition has not fallen below standard in the meantime.

4. When a student applicant takes the transport physical examination and finds that while he qualifies for student and private pilot, he does not qualify for limited commercial and transport pilot, he should write the medical section, Aeronautics Branch, Department of Commerce, Washington, for an official opinion on his defects. The medical section will inform him what the possibilities are of his receiving medical approval for the higher grades of license by means of a waiver.

5. If any applicant is physically disqualified for student pilot, he is at liberty to inquire of the Department the nature of his defects, and if the medical section believes there is anything in the way of treatment that will reasonably improve the defect, the applicant will be so advised.

6. When a student applicant has been physically disqualified by a medical examiner, he should await action on his examination by the Department. He should not visit other examiners in an effort to qualify, for even if an examination made by another medical examiner is satisfactory, it will not be accepted. Under such circumstances the medical section will require that the applicant return to the original medical examiner in order to demonstrate to that examiner that the disqualifying features are no longer present.

7. Prospective applicants who know they have certain physical defects are invited to communicate with the medical section and state the nature of the defects. The medical section will inform the prospective applicant whether or not the defects are disqualifying.

8. The student permit of any student will be suspended in case of an accident in which he sustains personal injuries such as to interfere materially with bodily functions. The suspension of the student permit will be maintained until the student is able to submit to a physical examination, made by an authorized medical examiner, showing that the student has recovered from his injury. In case of partial recovery, the medical section will determine whether or not the recovery is sufficient to warrant removal of the suspension.

9. In order to make the visual requirements clear, special attention is directed to this paragraph. The lowest vision acceptable for student pilot is 20/50 in either or both eyes, without correcting lenses. Judgment of distance must be within the normal specified limits, without correcting lenses. If the student just meets the foregoing minimum requirements, he is required to wear correcting lenses in his goggles, bringing his vision approximately to normal. His judgment of distance must be within qualifying limits while wearing this correction. Failure to meet any of the foregoing requirements will result in disqualification.

10. When it is necessary for the student to wear corrective lenses in his goggles, the correction should be ground into the goggle lenses. Small corrective lenses fastened on the inside of the ordinary goggle should not be purchased. Students should be very particular in these matters, for incorrect lenses often result in harm to the vision. When the corrective lenses are placed in the goggle, their accuracy should be checked by an authorized medical examiner.

11. Student applicants who do not meet at least the minimum physical requirements will not be recommended for license. Waivers will not be recommended for students.

AIR TRAFFIC CONTROL

AN extensive canvass of airport managers and engineers, airway operators and manufacturers of airport equipment, just completed by the Committee on Standard Signal Systems for Airports, organized by the Commerce Department in an endeavor to bring about uniformity in air traffic control systems at airports, has emphasized the fact that existing systems leave much to be desired, according to a statement by Harry H. Blee, director of aeronautic development of the Aeronautics Branch, Department of Commerce.

The full text of Mr. Blee's statement follows:

"The general reaction to the canvass seems to be that the studies are timely and that a solution of the problem of traffic control at airports is vital to the advancement of the industry. Furthermore, uniformity in the system adopted over the country at large is held to be of great importance.

"The reports received indicate that sirens are in use at a few of the larger airports and are quite effective in conveying information to ground operations. Visual signals

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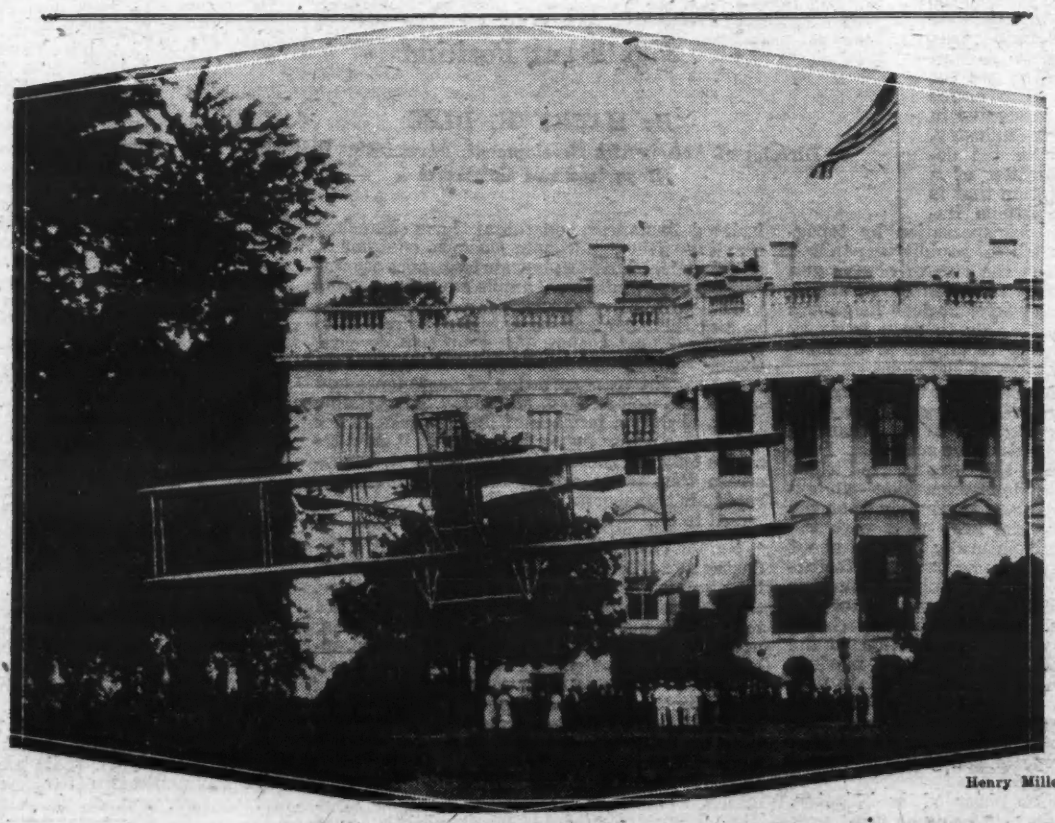
When Graham White Made An Historic Landing



Henry Miller

At the White House Just 18 Years Ago

NEW YORK'S EXPERIENCE

Development of Aviation in Empire State Under Supervising Commission Reviewed

AN EXTENSIVE outline of the experiences, methods and conclusions of a governmental agency placed in supervision of aeronautical operations in a large state has just become available. It is presented in the first report submitted by the New York State commission on aviation which was organized one year ago.

Text of the report follows:

During the year of 1928 there was in existence a special joint legislative committee on aviation which submitted its report to the legislature on Feb. 1, 1929. It was then decided that the powers of such legislative committee were not sufficiently broad. Therefore, on Mar. 6, 1929, a legislative bill creating a State commission on aviation was signed by the governor and became chapter 53 of the Laws of 1929.

AS IN the case of the 1928 legislative committee the activities of this commission have been largely confined to entirely new problems with no precedents to fall back upon for guidance in their solution. Whatever results, if any, its studies may have produced, and whatever constructive work, if any, it may have been able to accomplish, have been due in great part to the phenomenal spirit of cooperation it has met with on every side. Public officials—national, State and local—civic and commercial organizations, departments and bureaus of the National and State governments as well as many private individuals have all given every possible asssistance, and the commission is deeply grateful and greatly indebted to them for all they have done.

Public hearings have been held throughout the State at which various officials as well as private individuals appeared before the commission and gave it the benefit of their knowledge and advice.

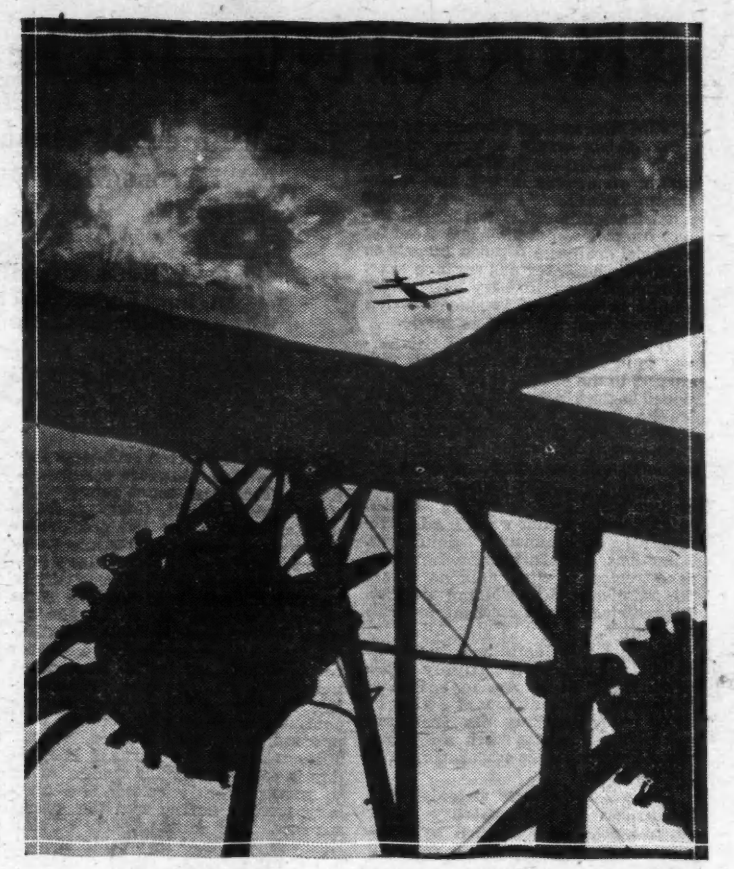
The commission feels that the time has not yet arrived for the establishment of a State department of aviation or the creation of an aviation bureau in one of the existing State departments. Doubtless in the not too distant future some such provision may be found necessary, but at the present time and for the next year at least, the most efficient as well as the most economical method of procedure seems to be the extension of the life of this commission. Legislation to this effect will be introduced in the 1930 session of the legislature.

Aviation is a highly technical subject and it is absolutely necessary that there be some officially recognized part of the State Government charged with the responsibility of suggesting and watching legislation as well as acting as an aviation clearing house and representing the State aviationally.

The main policy consistently followed by the State during the past year has been to cooperate as closely as possible with the Federal Government and to keep legislation dealing with aviation in as close accord as possible with the policies laid down by the Aeronautics Branch of the United States Department of Commerce.

The commission feels that it is extremely unwise for each individual State to adopt their own local policies and if such a condition should exist it would automatically create a chaotic condition extremely detrimental to the development of aviation in this country. If, however, each State will cooperate and coordinate its own policies to the fullest possible extent with those laid down by the Department of Commerce, we will then have a nation-wide unification of aviation control and development instead of having 48 individual State policies, no one of which would make any attempt to take into consideration the necessity for national unity.

This commission has also felt that it is much better that the States should proceed with caution and conservatism during the present stages of the development of aviation rather than placing restrictions and limitations which at a later time might be found detrimental as well as difficult to repeal. Considerable pressure has been brought by various individuals who were of the opinion that such policies as establishing State regulations and State licensing of planes and pilots should be put into effect but it has been the consensus of opinion of the commission that the time has not yet arrived for such action and that it is wiser to confine its recommendations and findings to the broader and more fundamental problems of its regulation and control. It is gratifying to know that this attitude has been approved by the Department of Commerce. In a letter from Maj. Clarence M. Young, Assistant Secretary of Commerce for Aeronautics, addressed to the chairman of this commission, he states that the Department has "in quite a few instances, held up the New York law as an example of constructive State aeronautical legislation." It has, therefore, been definitely decided that until conditions change materially, the State of New York will continue to follow the policy it has been acting under during the past two years.



By Ewing Galloway, N. Y.

An Aerial Arabesque

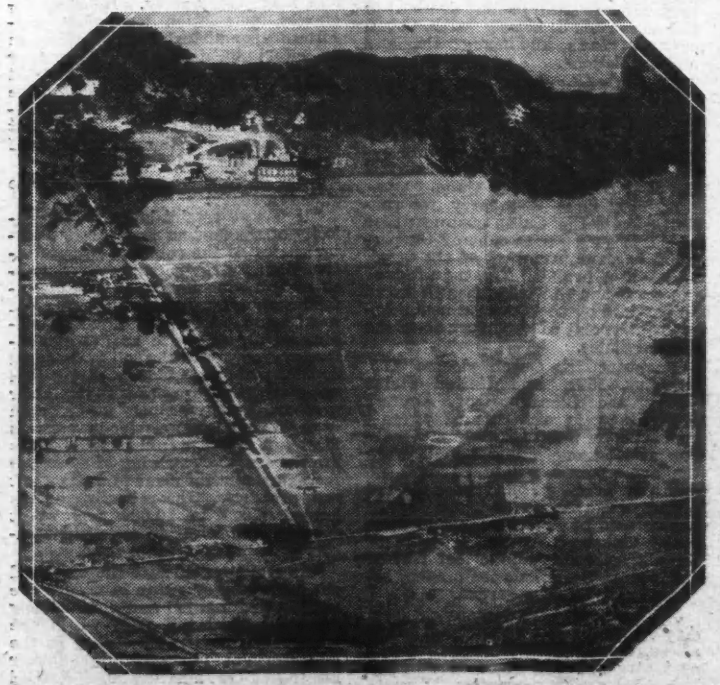
It was originally decided that the State should not undertake to establish or maintain any State owned or State controlled airfields. On the other hand, through legislation, it has made the establishment of these by either villages, cities or counties individually or jointly, as easy as possible in order to encourage their establishment. At the present time in the State of New York, excluding the two Army fields—Mitchel Field on Long Island and Miller Field on Staten Island, and excluding the 11 intermediate landing fields established by the Department of Commerce, there are 76 airfields in existence at the time this report is submitted. It is interesting to note that in the report submitted a year ago, descriptions of 39 airfields were carried. In contrast to that in the blue book of this present report, descriptions of 89 airfields are carried.

When an increase in the number of airfields has amounted to more than 100 per cent in the year it would seem that the State's policy in regard to the establishment of airfields is working out successfully.

The suggestion has been made as to whether State aid should be given for the general development of aviation as it has been to other methods of transportation. The building of highways by the State has made possible the present high development of the automobile. State land grants and State agricultural development has undoubtedly been a large factor in the development of railways, but what form State aid for aviation should take is problematical.

The local communities and the Department of Commerce have provided the necessary airfields along the main airways and outside of these the flying is more or less sporadic. While in other States conditions may be such that State aid would prove of great value, nevertheless here in New York, due to our local conditions, it would not seem feasible at this time.

The question of State supervision of aviation schools has been brought to the attention of this commission. Upon investigation it has been found that a large number of so-called "aviation schools" are in existence, especially in the Metropolitan area, whose sole and primary object is to defraud the public. Some of these so-called "schools" actually advertise that for a few hundred dollars they will teach students to fly without leaving the ground. Such conditions are bad for two reasons—first, because innocent citizens of the State who are interested in aviation and earnestly desirous of learning to fly, are defrauded of their tuition fee, and, second, because when students are so defrauded they are not only dissatisfied with the school, but are equally dissatisfied with aviation in general, which is extremely bad for its development. Schools play a very important part in aviation as it is there where the pilots of the future are trained. If the schools are of high caliber and efficient, they will graduate pilots of that type. If, on the other hand, they are not sincere in trying to develop well trained pilots, it means that a poor quality of graduates are turned out with a correspondingly bad influence on aviation.



By Ewing Galloway, N. Y.

The Airport at Syracuse, N. Y.

THE Department of Commerce at the present time issues licenses and gives ratings to aviation schools, but this is not compulsory. It is given only to those institutions which of their own volition request it. The State already supervises other secondary educational schools, such as medical and law schools and the like, and it seems to this commission there is no reason why it should not also supervise aviation schools for the protection of the public and for raising the quality of the pilots graduated.

Accordingly, after conferences with Dr. James Sullivan, who has spent much time and energy on this matter, a bill has been introduced which places these under the supervision of the State department of education.

A suggestion has been made in regard to the possibility of furnishing the department of State police with one or more airplanes. When the law compelling pilots and planes that are operating in this State to have the appropriate license was put into effect, the enforcement was placed in the hands of the department of State police. Its enforcement has been carried out most faithfully and most successfully. There are certain members of this department who have pilots' licenses and who are perfectly capable of operating planes if they were assigned to the department.

The legislative act which was passed

[Continued on Page 8, Column ·.]

CHOOSING THE AIRPORT'S SITE

Establishment of Standards of Selection Having Economic Operation of Field As Aim Is Urged

By C. A. HOGENTOGLER *and* F. A. ROBESON
Highway Engineer and Junior Highway Engineer
United States Bureau of Public Roads

SINCE a system adequate to completely drain a large airport may approach $50,000 or $75,000 or even more in cost, the importance of selecting a site which requires a minimum amount of artificial drainage becomes apparent. The need for artificial drainage depends largely on both soil character and surface slope. Therefore, a preliminary soil survey should be made of prospective sites before a final selection is made.

It will prove beneficial in this survey to identify the various soils with respect to the subgrade grouping proposed in the United States Bureau of Public Roads publication—Public Roads, Vol. 10, No. 3, May, 1929. The portion of this grouping applicable to airports is summarized as follows:

Group A-1.—Well-graded material, coarse and fine, excellent binder. Highly stable under wheel loads, irrespective of moisture conditions. Functions satisfactorily when surface-treated or when used as a base for relatively thin wearing courses. Represented by the excellent top soils of Georgia.

Group A-2.—Coarse and fine materials, inferior binder. Highly stable when fairly dry. Apt to soften at high-water content caused either by rains or by capillary rise from saturated lower strata when an impervious cover prevents evaporation from the top layer.

Group A-3.—Coarse material only, no binder. Lacks stability under wheel loads, but unaffected by moisture conditions. Furnishes excellent support for flexible pavements of moderate thickness and for relatively thin rigid pavements. Represented by the Florida sands.

Group A-4.—Silt soils without coarse material, and with no appreciable amount of clay. Apt to absorb water very readily in quantities sufficient to cause rapid loss of stability even when not manipulated. When dry or damp, presents a firm riding surface which rebounds but very little upon the removal of load. Apt to cause cracking in rigid pavements due to frost heaving and failure in flexible pavements due to low support. Represented by the New Hampshire silts.

Group A-5.—Similar to Group A-4, but furnishes highly elastic riding surfaces with appreciable rebound upon removal of load even when dry. Elastic properties interfere with proper compaction of macadams during construction and with retention of good bond afterwards. Represented by highly micaceous soils of North Carolina.

Group A-6.—Clay soils without coarse material. In stiff or soft plastic state absorb additional water only if manipulated. May then change to liquid state and work up into the interstices of macadams. Furnish firm support essential in properly compacting macadams only at stiff consistency. Deformations occur slowly and removal of load causes very little rebound. Shrinkage properties combined with alternate wetting and drying under field conditions are apt to cause cracking in rigid pavements. Represented by the Mississippi gumbo.

GROUP A-7.—Similar to Group A-6, but when moist, deforms quickly under load and rebounds appreciably upon removal of load. Thus, lacks firmness in support, similar to subgrades of Group A-5. Alternate wetting and drying under field conditions leads to ever more detrimental volume changes than in Group A-6 subgrades. May cause concrete pavements to crack before setting and to crack and fault afterwards. Represented by Illinois gumbo and typical adobes.

Group A-8.—Very soft peat and muck incapable of supporting a road surface without being previously compacted or displaced by a fill. Represented by Michigan peat bogs.

Group B-1.—Nonuniform natural ground due to abrupt variation in soil characteristics, or soil profile, or to frequent change in field conditions.

The definitions, it will be noted, differentiate between those subgrades which remain compressed after the removal of load and those which rebound upon the removal of load, a distinction not furnished by the mechanical analysis of soils.

This difference in the character of subgrades may be demonstrated by means of a small sponge and a piece of cotton. If after both are thoroughly wetted they are compressed by the hand, the cotton representing a compressible silt, Group A-4 subgrade, remains in the compressed state due to capillary pressure acting upon its surface. This capillary pressure in amount must of necessity be equal to at least that furnished by the pressure exerted to squeeze the cotton. Furthermore it exceeds any tendency possessed by the cotton strands to separate, otherwise the cotton would expand. The sponge, representing the elastic silts, in contrast to the cotton, expands after being compressed to almost its wet volume. This is due to the fact that the tendency possessed by the sponge fabric to expand greatly exceeds the capillary pressure acting upon the sponge surface. This same property of elasticity is possessed by organic matter, mica and diatoms. Consequently the presence of these materials greatly increases both the porosity and the permeability and reduces the stability of subgrade soils.

THE cotton expands to its original volume when replaced in the water because the capillary pressure acting upon its surface is reduced to zero. A compressible silt due to the fact that it posseses little or no cohesion, expands likewise when immersed in water and to such an extent that the silt is apt to become liquid and flow. A clay immersed in water under the same conditions is apt to suffer but little increase in volume. This is due to the fact that the degree of cohesion existing between the particles of wet compressed clay is apt to exceed the force which the capillary moisture when attempting to enter the clay, exerts to push the soil grains apart. Figure 5 shows clay cakes which have suffered no visible increase in volume after being immersed in water for more than a year.

Depending upon the results furnished by the preliminary soil surveys of prospective airport sites select if possible a location in which the ground water elevation is low and whose soil consists of either a prous, poorly graded material of the Group A-2 variety or a porous material underlain with cohesionless sand or gravel (Group A-3). Furthermore, a slight grade is desirable with respect to drainage.

The surface of the St. Joseph, Missouri, airport (7) for instance consists of several feet of river sand (probably porous A-2 material) compacted during a period of years to such an extent that it possesses high stability and also percolation in degree sufficient to permit the rapid entrance of surface water.

The site of the Municipal Airport at Pontiac, Mich. (8), was selected on the basis of a soil which consisted of sand containing but a small amount of binder (Group A-2) and a subsoil consisting of cohesionless gravel (Group A-3) about 3 feet thick. This ideal soil combination furnishes high stability and also provides for the rapid percolation of surface water into the subsoil.

A slight slope also may serve to eliminate the necessity of installing artificial drainage. A slope of 0.5 per cent, for instance, causes water to drain rapidly off of both runways and the remainder of the Grand Central Air Terminal, Los Angeles (9). The runways in this case consist of oil mixed with sand and silt to a depth of 6 inches and the remainder of the field (sand and silt mixture (Group A-2) is kept dustless by applications of road oil—60 per cent to 70 per cent asphalt).

Other things being equal, the rate of flow from slopes of 1.0 per cent, 1.5 per cent and 2.0 per cent should be, respectively, 1.4, 1.73 and 2.0 times that furnished by a slope of 0.5 per cent. Even though increasing the slope of the field may not serve to entirely eliminate the necessity of artificial drainage, it may serve to reduce very appreciably the total length of drain required and thus serve to reduce the total cost of the drainage system.

Should only sites requiring artificial drainage be available, then following the selection of one of them the preliminary soil survey referred to above should be supplemented by a very thorough examination of those parts of the field requiring drainage. Primarily an examination of this character should serve to disclose the ground-water elevation, and the arrangement, thickness and permeability of the zones comprising the soil profile.

Such an examination, which will probably be the means of saving many times its cost in the construction of the drainage system, will necessitate the making of borings 5 to 10 feet deep and at distances apart variable depending on the soil character. It may include also the digging of a number of pits in order to obtain undisturbed soil samples for laboratory test. Included in the laboratory tests is the determination of the coefficient of permeability according to methods developed by Dr. Charles Terzaghi (10), formerly professor of foundation engineering at the Massachusetts Institute of Technology and also research consultant at the Bureau of Public Roads.

Artificial drainage may serve to (a) remove surface water, (b) intercept seepage and (c) depending upon climatic conditions, reduce the extent of heaving of runways due to frost action.

TO REMOVE surface water, drains should be placed along the edges of runways when present. When airports do not contain runways drains to remove surface water should be spaced in the entire landing area at distances apart depending upon the volume of water to be removed, the slope of the field and the resistance of the surface of the field to erosion.

To intercept seepage drains again should be placed along the edges of runways and depending upon conditions discussed subsequently, drains should be placed also beneath the runways. When no runways are used the spacing of drains in the landing field presents a complex problem for which no accurate solution is at present available.

Agriculturists at times have tentatively attempted to estimate the proper spacing of drains on the basis of soil grain size. This method is not applicable to airports for two reasons: (a) Soil permeability depends upon factors other than grain size, and (b) the permeability of soils equal in grain size may vary widely. In other instances, percolation tests were performed upon disturbed soil samples in an effort to determine the proper spacing of draintile. This method likewise is not applicable due to the fact that the permeability of the disturbed soil sample may furnish but little indication of the permeability of the soil in the field (11).

Sven A. Norling (12) for instance states in effect:

"It is well established that the velocity of the flowing underground water varies as the square of the effective diameter of the soil grain. Considering a silt soil with an average effective diameter of the soil grain equal to 0.05 mm., as compared with a medium sandy soil with an average effective diameter of the soil grain equal to 0.50 mm., the velocity of the soil water toward the outlet is in the latter case one hundred times larger than in the former case, provided the soil is ideal and all other influencing factors are the same. A spacing of 80 to 100 feet is usually sufficient to drain a silt soil properly. Theoretically, drains located 8,000 to 10,000 feet apart should be sufficient to convey the excess water in a medium sand.

"As a matter of fact the clay and silt soils as they occur in nature are cracked and fissured and differ widely from the ideal soil with which the laboratory investigator deals. In the laboratory at Wisconsin, the author has shown that a natural undisturbed

[Continued on Page 11, Column 3.]

REGULATIONS IN CUBA

AMERICAN pilots and operators contemplating flights in their own planes to or from Cuba should study the following requirements which have been laid down by the Cuban government and which have been announced by the Aeronautics Branch of the Department of Commerce.

Entering Cuba.—1. Before American-owned aircraft (other than military) will be permitted to enter Cuba, such aircraft must be licensed and registered by the United States Department of Commerce. The letter "N" must precede the license number and symbol—such as NC, NR, or NS. Such aircraft must also carry aircraft and engine log books, and the aircraft license must be displayed in the manner provided by the Air Commerce Regulations.

2. The pilot must be licensed by the United States Department of Commerce, and shall have his license and pilot's log book in his possession.

3. Before taking off from a foreign port or place for Cuba, the pilot of any aircraft shall first obtain authorization from the War Department of Cuba (this department is in charge of the civil as well as military aviation) to fly over Cuban territory. He shall also inform the collector of customs at the place of first landing of the intended flight, giving the type of aircraft, the markings thereon, the name of the pilot, and the approximate time of arrival. The requirement of this advance notice, however, shall not apply after service by such aircraft on a regular schedule has been established.

4. The person having charge of any aircraft arriving in Cuba from any foreign port shall immediately report his arrival to the customs officer at the port of entry or customhouse at which such aircraft shall be first destined in Cuba and shall comply with Cuban customs, health, and immigration laws and regulations.

5. Any American-registered aircraft engaged in the transportation of freight or passengers flying over the Cuban territory should carry a certificate of registration or inscription, issued by the aviation section of the War Department of Cuba.

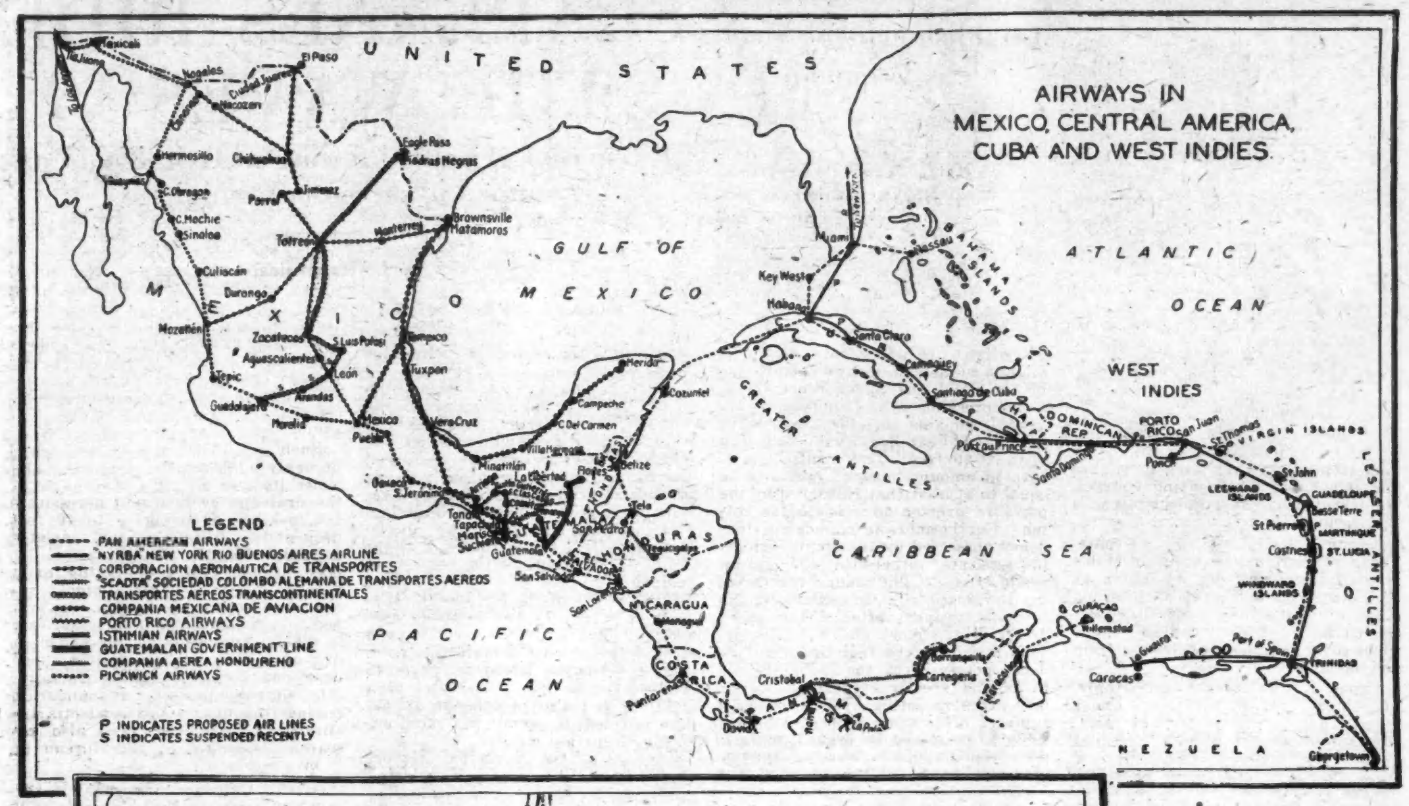
6. They must also carry for presentation to the Cuban customs: List of passengers, an account of the personal baggage, manifest of the cargo, and bill of health. The manifest of the cargo and the bill of health are to be certified by the Cuban consul nearest to the point of departure from the United States.

Pursuant to Cuban decree 115, January, 1929, and United States Entry and Clearance of Aircraft Regulations, in the case of aircraft operating on fixed schedule and making at least one round trip between the same points within 10 days, no manifest of cargo need be delivered unless cargo is carried, no bill of health need be presented except when made necessary by the presence of certain epidemics at the last port of departure. Crew lists customarily required may be disregarded.

Aircraft carrying persons or property for hire must, in addition to the above, comply with the requirements of Entry and Clearance of Aircraft Regulations. (Aeronautics Bulletin

[Continued on Page 9, Column 1.]

AIR ROUTES IN LATIN AMERICA



NAMES of companies operating regular air services in Latin-America, with details of the services of each, are listed by aeronautics trade division, of the Bureau of Foreign and Domestic Commerce, Department of Commerce, as follows:

▼

Compania Lloyd Aero Boliviano; total operating mileage, 2,198. Casilla 357, La Paz, Bolivia: Passengers, mail and goods:

Cochabamba-Santa Cruz, 242 miles.

Cochabamba - Vallegrande, 186 miles.

Vallegrande-Santa Cruz, 118 miles.

Santa Cruz-Puerto Suarez, (via San Jose and Robore), 466 miles.

Santa Cruz-Yacuiba, 373 miles.

Cochabamba-Todos los Santos, 125 miles.

Todos los Santos-Trinidad, 155 miles.

Trinidad-Villa Bella (via Santa Ana, and Guayaramerin), 310 miles.

Villa Bella-Riberalta (via Esperanza), 93 miles.

La Paz-Cochabamba, 130 miles.

▼

The Condor Syndicate; total operating mileage, 1,011. Rua Alfandega, 5, Edificio Banco Germanico, Rio de Janeiro. Passengers, mail and goods:

Rio de Janeiro-Rio Grande do Sul, 851 miles.

Rio Grande do Sul-Puerto Alegre (via Pelotas), 160 miles.

▼

Chilean Army Mail Service; total operating mileage 1,035 miles. Santiago, Chile. Passengers, mail and goods:

Santiago-Arica (via Coquimbo, Ovalle, Copiapo, Antofagasta, Iquique), 510 miles.

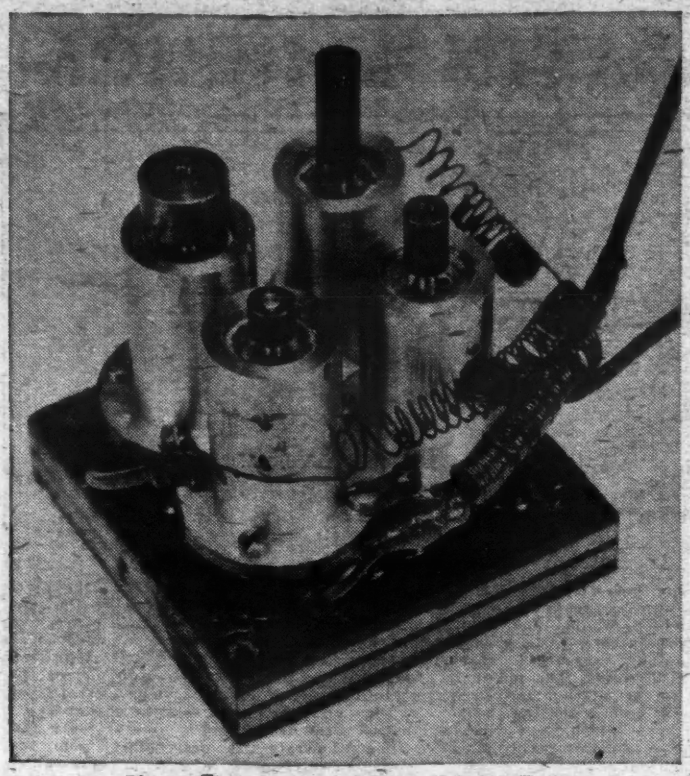
Santiago-Puerto Montt, 525 miles.

▼

Sociedad Colombo Alemana de Transportes Aereos (Scadta); total operating miles, 2,720. Barranquilla, Colombia. New York office, care of International Aero-

[Continued on Page 8]

Companies operating regular air services in Latin-America are now 17 in number, with a total length of 34,951 miles and additional services scheduled to start in the near future, according to a statement issued this week by the aeronautics trade division of the Bureau of Foreign and Domestic Commerce, Department of Commerce.



Plunger-Type Accelerometer Used in the Tests

When SEAPLANES RIDE THE WAVES

Distribution of Water Pressure on Twin-Float Craft Studied by Advisory Committee

By G. L. THOMPSON
Langley Memorial Aeronautical Laboratory

THERE is but little known concerning the magnitude and distribution of water pressures on seaplanes when landing or taxiing on either smooth or rough water. Consequently, the size and arrangement of structural members that make up a seaplane float are based on expefience with previous successful designs rather than on definite information as to the forces to be encountered. Floats that are undamaged in operation are sufficiently strong, but knowledge of the actual water pressures encountered is needed before structural weight can be safely reduced to a minimum.

At the request of the Bureau of Aeronautics, Navy Department, a series of investigations to determine water pressures on various types of seaplane floats are being made by the National Advisory Committee for Aeronautics. The investigation reported herein is the second in this series and was conducted on a twin-float seaplane. The first investigation was conducted on the UO-1 single-float seaplane and has been previously reported. The third investigation is to be conducted on a boat-type seaplane.

ALL results of the second investigation show that water pressures as great as 10 pounds per square inch may occur at the step in various maneuvers and that pressures of approximately the same magnitude occur at the stern and near the bow in hard pancake landings with the stern well down. At other parts of the float the pressures are less and are usually zero or slightly negative for some distance abaft the step. A maximum negative pressure of 0.87 pound per square inch was measured immediately abaft the step. The maximum positive pressures have a duration of approximately one-twentieth to one-hundredth second at any given location and are distributed over a very limited area at any particular instant. The greatest accelerations measured normal to the thrust line at the c. g. occurred in pancake landings, and a maximum of 4.3 g. was recorded. Approximate load distribution curves for the worst landing conditions are derived from the data obtained to serve as a guide in static tests.

A TS-1 twin-float seaplane was used, and positive water pressures were measured at 15 stations on the outboard half of one float bottom. Subsequently to the positive pressure measurements, negative pressures were determined at five points abaft the step and one forward. The apparatus used for measuring positive pressures was the same as that used in the previous investigation (reference 1), with some minor changes. Additional instruments were used to record accelerations normal to the thrust line at the center of gravity of the seaplane and to measure, approximately, accelerations of the float bottom.

The tests included numerous taxiing and landing runs at various speeds and altitudes except that negative pressure measurements were confined to take-off runs. Simultaneous records of the water pressures at all stations, the air speed, float angle, and acceleration were obtained. The average wind velocity was also determined with an anemometer while testing was in progress so that the water speed could be computed.

IN THE report is a brief description of the instruments and apparatus used in the tests, a description of the test procedure, the results obtained and conclusions reached. The complete data are presented in tables and are summarized by a table and curve showing the distribution of maximum pressures over the float bottom. In addition, there are curves showing the manner in which water pressures act on the float bottom and approximate load distributions for hard pancake landings.

These tests were conducted on a TS-1 twin float seaplane. It is a single-place biplane that may be equipped with either floats or wheels. As a seaplane it has a specified gross weight of 2,123 pounds. The weight of the research equipment used in the tests was such that it was necessary to reduce the fuel load one-half to keep the gross weight as specified. It was found that the landing speed was from 60 to 65 miles per hour for a normal landing.

The floats are of wooden construction and shaped as shown above. The step is 2 inches high at the keel; the angle of the after keel is 5½ degrees; and a line from the bottom of the step to the stern makes an angle of 7 degrees with respect to the deck line. The deck line is parallel to the thrust axis and wing chords. The angle of V is 17 degrees at the bottom of the step and increases slightly toward the bow, giving a flairly flat entry. Abaft the step the angle of V is 16 degrees. Negative pressures were measured on a float of slightly modified shape. The principal differences are in the step, which is 3 inches high, and the after keel angle, which is 4 degrees.

The research equipment included the following instruments and apparatus:

1. A single-component recording accelerometer.
2. A float angle observer.
3. Two recording manometers.
4. A swiveling Pitot-static air-speed head.
5. A motor-type electric timer.
6. A 4-element plunger-type accelerometer.
7. Water-pressure apparatus, positive and negative.

1. A description of the N. A. C. A. single-component recording accelerometer is given in reference 2. This instrument records optically the deflection of a weighted cantilever spring. The component acceleration normal to the thrust line was measured with this instrument during each run of the positive pressure tests.

2. Longitudinal float angles were recorded by photographing the shore line parallel to the path of the seaplane with a small, motor-driven motion-picture camera rigidly mounted in the fuselage. Five images per second were obtained.

3. Two recording manometers with two pressure cells each were used. An instrument of this sort with one pressure cell is described in reference 3 as the recording element of an N. A. C. A. recording air-speed meter. It records optically the deflections of a diaphragm actuated by the pressure to be measured. One of the four pressure cells thus provided was used to record air speed in these tests. The other three were used to record pneumatic pressures used with the water pressure apparatus.

4. The swiveling Pitot-static air-speed head was located on a forward wing strut and was connected to the air-speed recording pressure cell mentioned above.

5. Records were synchronized by timing lines at 1-second intervals with an N. A. C. A. motor-type electric timer. An N. A. C. A. chronometric timer and the method of using it are described in reference 4. The difference in these two instruments is only in the means employed to obtain periodic electrical contacts.

6. A plunger-type accelerometer with four elements were used to measure, approximately, the acceleration of the float bottom planking. This was primarily for the purpose of determining the proper correction to apply to recorded water pressures for the effect of acceleration of the water-pressure units. A photograph of this instrument is shown in Figure 3. It is similar in principle to the accelerometer designed by Dr. Zahm. (Reference 5.) A cross section drawing of one element and a diagram of the recording circuit and mechanism are given in Figure 6. The four elements are similar but respond to different accelerations. The variation in sensitivity is obtained by varying the plunger weight and spring pressure. The elements were calibrated centrifugally, on a whirling table, and were adjusted to respond to accelerations of 2 g., 4 g., 6 g., and 8 g., respectively. The record obtained is a line broken in steps which indicate the number of plungers making contact. To insure proper accuracy in recording short-period accelerations, the contact clearance was set at 0.003 inch. The instruments were made as small and light as practicable and weighed but 0.6 pound when ready for installation. It was mounted on the right side of the bottom of the left float about 15 inches forward of the step and in the center of an unsupported bottom planking area.

7. A detailed description of a water-pressure unit and the complete apparatus used in recording water pressure is given in reference 1. The water-pressure units operate on a principle of opposing the force due to water pressure on one end of a piston by a force due to a known pneumatic pressure on the other end. When the water force exceeds the pneumatic force the piston makes an electric contact which is indicated in an optical record by deflection of the record line. Four such pistons in each unit respond to different water pressures and cause different deflections. The range of pressures recordable depends on the pneumatic pressure, which can be varied as desired. Fifteen of these pressure units were installed in the left side and seven in the right side of the bottom of the left float, as shown in Figure 5. As the water-pressure recorder accommodates but 15 pressure units, all of those on the left side were first connected. The remaining seven units were to be connected later to determine if appreciable difference in pressure existed between the two sides of the float bottom. This was not done, however, since the floats were in very bad condition at the completion of the tests with the first 15 units.

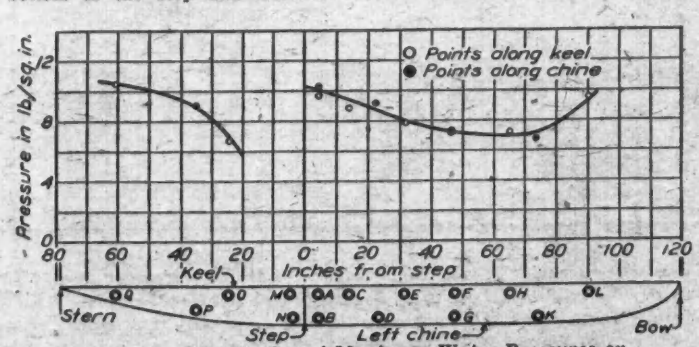


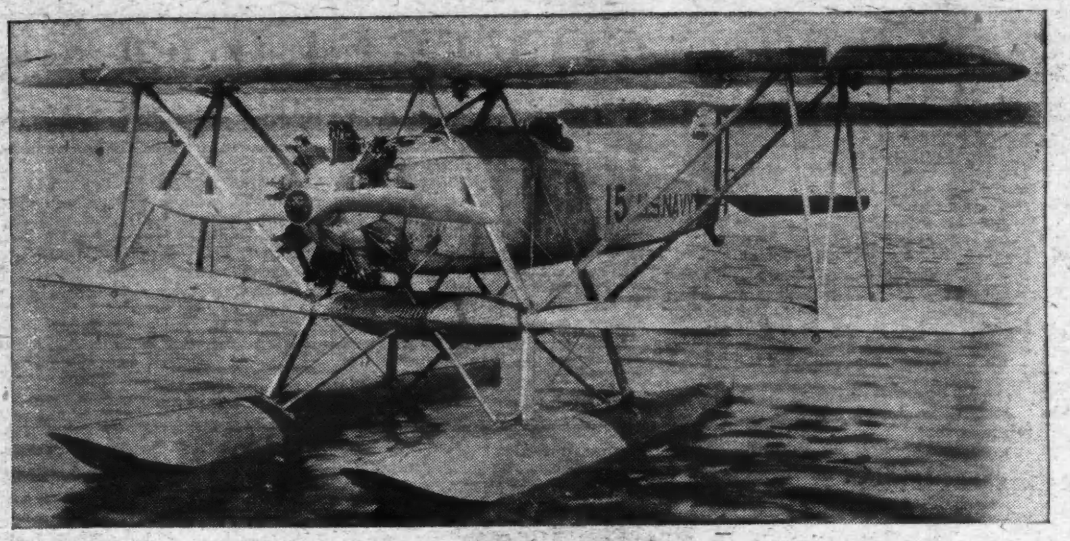
Figure 1.—Distribution of Maximum Water Pressures on the Float Bottom.

THE only essential difference between the installation used in these tests and that used formerly, as described in reference 1, is in the connection of all pressure unit recording circuits in parallel to a 6-volt storage battery instead of using independent circuits with a 1.5-volt dry cell for each one. The electrical circuit for each pressure unit is similar to that of the plunger-type accelerometer shown in Figure 6. When this accelerometer was used it was connected to the water pressure recorder in place of one of the water-pressure units.

Negative water pressures were recorded with two 2-pressure-cell recording manometers as described above. They were connected to ⅛-inch-diameter orifices in the float bottom by metal tubing. Five orifices were located abaft the step and one immediately forward, all on the same side of the float bottom. Each manometer accommodated two orifices, so that only four orifices at a time could be connected.

Two storage batteries are carried in the forward compartment over the group of recording instruments. The gauges, dial and hand pump are parts of the apparatus used in adjusting the pneumatic pressure applied to the water-pressure units. One switch on the instrument board and one by the throttle control were operated when making a run. The latter switch could not be left on more than three seconds, which made it necessary to

A Story of Water Pressure



The TS-1 Seaplane on Which the Tests Were Conducted

judge accurately the exact time to operate it when landing.

With instruments and installation as thus described, continuous records, synchronized at 1-second intervals, were obtained during each run. The length of the run, when measuring positive water pressures, was limited to three seconds or less by the nature of the recording arrangement. In the negative pressure tests the length of the records was not limited to so short a period and continuous records of complete take-off runs were obtained. Air speed, longitudinal float angle, acceleration, and water pressures were measured simultaneously during each run, with the exception that during negative pressure tests, acceleration records were not obtained. Positive water pressures were measured at all 15 stations simultaneously, and negative pressures were recorded at six orifices in all, with only four connected at any one time.

The maneuvers included taxiing at various altitudes and speeds up to get-away, stalled landings with power off and power on, fast landings, pancake landings, and porpoising. Negative pressures were measured during the take-offs with the control back, neutral, and forward, respectively. Each negative pressure run was continuous from opening of the throttle to get-away. The actual get-away when taking off with the control neutral or forward was accomplished by pulling the control back. The pancake landings were made by stalling at a very high angle several feet above the water. The seaplane showed a pronounced tendency to porpoise, particularly when decelerating after landing, and water pressures were, therefore, measured during this maneuver.

The wind velocity was determined with an anemometer while making tests so that the approximate water speed could be obtained from the air-speed record. The tests were all made in sheltered water where the maximum waves encountered were not more than 15 inches high. The pancake and fast landings developed pressures which damaged the float bottom so maneuvers in rough water were not attempted. The pancake landings caused high local pressures to occur over nearly the entire length of the float and also large total loads with the maximum resultant force.

Both floats were cracked at the step during the tests. The right one was in poor condition at the start and was damaged in a fast landing. The left float cracked in a pancake landing. A landing made while making negative pressure trials was unintentionally hard and ruined both floats, making it necessary to replace them both for the negative pressure tests.

The accuracy with which water pressures are recorded is discussed throughly in reference 1. The two chief sources of error, as shown therein, lie in the effect of acceleration on the movable pistons of the pressure units, and in the method of bracketing the true pressure between limits of a pressure exceeded and one not exceeded. The error caused by acceleration may be corrected if the acceleration is known. The error due to bracketing is dependent on the closeness of the pressure limits, which varies for different pressure units. The true pressure should be considered as the mean of the limits. For a representative case, the difference between the mean and the limits was found to be about 9 per cent of the mean, but the accuracy of the mean for any particular case must be found from the actual limiting pressures determined. A maximum correction for acceleration should be based on an acceleration of approximately 4 g., as determined with an accelerometer in the float bottom. The computed maximum correction to be added to the recorded pressure limits is then approximately one-fourth pound per square inch.

The maximum pressures corrected as above are probably corrected within less than ±10 per cent.

The air-speed measurement is estimated to be accurate within ±1 miles per hour.

The accuracy of the water-speed measurements depends on the accuracy of the air speed and the accuracy with which the average wind velocity represents the actual wind velocity when a run is made. The accuracy is estimated to be within ±4 miles per hour.

The float-angle values are correct within ±1½°.

The accuracy of the negative pressure measurements is within ±2 per cent.

The accelerations at the center of gravity are considered to be accurate within ±0.1 g.

THE acceleration of the float bottom can only be approximated since it was determined by limiting accelerations between values 2 g. apart. The limits themselves have negligible errors.

The maximum pressures during each run have been recorded, accompanied by a description of the maneuver, the air speed, longitudinal float angle, maximum acceleration, condition of the water surface, and the approximate water speed. The locations of the pressure stations are shown in a figure accompanying the table. For some stations the highest pressure exceeded is not accompanied by an upper limit of pressure not exceeded. Where both limits are given the true maximum pressure is considered to be the mean of the limits plus a correction of one-fourth pound per square inch for acceleration of the pressure unit, as mentioned in the discussion of precision. Where only the lower limit is given the true maximum is considered to exceed this limit by three-fourths pound per square inch, which includes the correction for acceleration and an assumed value of one-half pound per square inch based on a study of the complete data and the limits that were established at other stations. The five highest true pressures at each station are given in a table with each pressure corrected as above, although it is probable that the correction for acceleration is slightly excessive in some cases, which would make the tabulated pressures a little greater than the actual pressures experienced for such cases. The maximum pressure for each station is given by this table was used in plotting the curve of Figure 1, which shows the distribution of maximum pressures over the float bottom.

The highest pressure occurred in pancake landings, very fast landings, and in fast taxiing runs. The highest vertical accelerations, 4.3 g. and 3.8 g., occurred in pancake landings. Accelerations in excess of 3 g. also occurred in fast landings, and in one porpoising run in 12 to 15 inch waves. In the latter run the acceleration was 3.4 g.; the water pressures, however, were not obtained. The worst distribution of pressures occurred in the pancake landings. In these maneuvers the float angle was large and the rate of descent was high. The result was high pressure at the stern followed by high pressure at the step and later at the bow. The reason for this wide distribution of high pressures was the rotation of the seaplane caused by the force abaft the c. g. and subsequently retarded by a force forward of the c. g. The shape of the float and the location of the c. g. were such that the retarding force was developed suddenly by a high pressure near the bow. During other maneuvers very high pressures were confined to a region extending forward from the step a short distance. The distribution of maximum pressures given by the curve of Figure 1, therefore, closely represents the distribution i na severe pancake landing.

THE maximum pressures which have been discussed do not occur simultaneously over the entire float bottom, but are confined to a small portion of the bottom at any particular instant, and last only one-twentieth to one one-hundredth second. In a few cases it has been possible to determine accurately the duration and to trace the progress of pressure in excess of a certain value as it travels over the float bottom. The duration and travel of the high pressure can then be shown by curves as described below.

The operation of the first piston of a water-pressure unit indicates that the water pressure has exceeded the minimum pressure which the pressure unit will record with the particular internal pneumatic pressure used. The elapsed time during which this piston remains against its contact represents the duration of the water pressure in excess of that minimum. The relative time at which the first piston of each pressure unit operates is determined from the water-pressure record. These values are used as ordinates in plotting a curve with distance of the stations from the step as abscissas. Separate curves are drawn for stations along the keel and along the chine. To these ordinates increments are added which represent the duration of the pressure in excess of the minimum which each unit will record. Two pairs of curves are thus obtained; one represents the travel and duration of pressure in excess of a certain minimum along the keel, and the other does the same for stations along the chine. The difference in time between the start of high pressure at the keel and chine at a given abscissa represents the lag in transverse distribution of pressure due to the V bottom.

The procedure, as described above, was followed for two severe pancake landings, runs 55 and 56. The resulting curves are shown in (A) and (B) of Figures 2 and 3. The lag in transverse distribution of pressure is noticeable in these curves. The minimum pressure recordable was approximately 5 to 6 pounds per square inch for all stations during both of these runs, and the curves, therefore, represent the travel and duration of pressure exceeding 5 to 6 pounds per square inch. At some stations this minimum pressure was not exceeded and the pressure travel curves, therefore, could not be drawn for the portion of the bottom represented by these stations.

In addition to the high pressure concentrated on a small area at a particular instant, there is also a smaller sustained pressure over a large area to consider. The fluctuations in pressure in a small fraction of a second are usually much greater than the range of pressures that the pressure units will record at one setting of the internal pneumatic pressure. It is, therefore, necessary to determine the highest pressures for a maneuver in one run with the internal pressure set for a high pressure range, and the low sustained pressures in a repetition of the maneuver with the internal pressure set for a lower recording range. A study of the records on which low pressures are recorded gives a basis for an assumption as to the sustained pressure to expect over a large area while a concentrated high pressure exists at any given location.

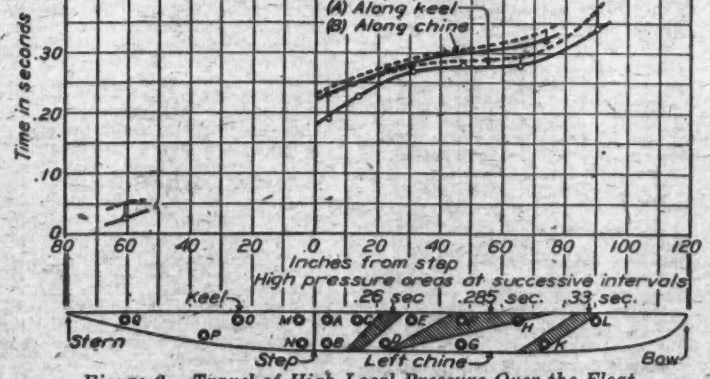


Figure 2.—Travel of High Local Pressure Over the Float Bottom in Pancake Landing, Run 55. Water Speed 48 M. H. P., Smooth Water.

A SUSTAINED pressure which continued for at least one-fourth second after the high pressure had passed the stations was recorded at stations C, D, and H during pancake landing run 44. This landing was similar to the pancake landings, runs 55 and 56, for which pressure travel curves are given, with the exception that it was made on water with 10 to 12 inch waves and at 10 miles per hour less water speed. The highest recorded acceleration at the c. g. (4.3 g.) was obtained in this run and the float bottom was damaged at station B. The sustained pressure was 4.3 to 5.7 pounds per sqare inch at C, in excess of 4 pounds

[Continued on Page 10, Column 1.]

AIR ROUTE LISTING

[Continued from Page 5.]

travel and Supplies, Inc., 11 Broadway, New York City. Passengers, mail and goods.

Barranquilla-Girardot (via Calamar, Maganque, El Banco, Gamarra, Puerto Wilches, Puerto Barrios, Barrancas, and Lo Dorado), 625 miles.

Girardot-Nieva, 94 miles.

Barranquilla-Buenaventura (via Cartagena, Lorica and Sautata), 520 miles.

Buenaventura-Guayaquil (Ecuador), 475 miles.

Guayaquil-Paita (Peru), 112 miles.

Bucaramanga-Puerto Wilches, 80 miles.

Cristobal-Sautata, 240 miles.

Cristobal-Cartagena-Barranquilla, 484 miles.

Bogota-Ibague (via Girardot), 90 miles.

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The Compagnie Generale Aeropostale; total operating mileage 5,035. 92 Avenue des Champs Elysees, Paris, France. (Mail.) Passengers—Buenos Aires-Natal:

Buenos Aires-Santiago (via Mendoza, Villa Mercedes and Rufino), 750 miles.

Buenos Aires-Comodoro Rivadavia (via Bahia Blanca, San Antonio and Trelew), 840 miles.

Buenos Aires-Asuncion (via Monte Caseros and Posadas), 690 miles.

Buenos Aires-Natal (via Pelotas, Porto Alegre, Florianopolis, Sao Francisco, Paranagua, Santos, Rio de Janeiro, Victoria, Carvellas, Bahia, Maceio and Recife), 2,515 miles.

Buenos Aires-Mar del Plata, 240 miles.

▼

Guatemalan Government Lines; total operating mileage 240. Guatemala City, Gautemala. Passengers, mail and goods.

Guatemala-Huehuetenango, 75 miles.

Guatemala City-La Libertad-Flores, 165 miles.

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Compania Aereo Hondureno; total operating mileage 166. Tela, Honduras. Passengers, mail and goods:

Tela-San Pedro-Teguci,galpa, 166 miles.

▼

Compania Mexicana de Aviacion S. A.; total operating mileage 1,895. Edificio Woodr. W., 2° piso, Mexico, D. F. Passengers, mail and goods:

Brownsville (Texas)-Mexico City (via Matamoras and Tampico), 472 miles.

Vera Cruz (Tejeria)-Merida (via Minatitlan-Villa Hermosa-Ciudad del Carmen and Campeche), 535 miles.

Vera Cruz-Tapachula (via San Jeronimo and Arriaga), 419 miles.

Tapachula-Guatemala City, 133 miles.

Mexico City-Tuxpan (via Tampico), 244 miles.

Tampico-Vera Cruz (via Tuxpan), 225 miles.

▼

Corporacion Aeronautica de Transportes S. A.; total operating mileage 2,033. 5 de Mayo, No. 6 A, Mexico, D. F. Passengers, mail and goods.

Matamoras-Mazatlan (via Monterrey, Torreon, and Durango), 683 miles.

Mexico City-Ciudad Juarez (El Paso) (via Leon, Aguascalientes, Zacatecas, Torreon, Parral, and Chihuahua), 1,003 miles.

Chihuahua-Nogales (via Nacozari and Cananea), 347 miles.

▼

Transportes Aereos Transcontinentales, S. A.; total operating mileage 605. San Luis Potosi (to be moved to Torreon). Passengers, mail and goods.

Torreon-San Luis Potosi (via Zacatacas), 290 miles.

Torreon-Piedras Negras, 315 miles.

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Isthmian Airways, Inc.; total operating mileage 47. Cristobal, C. Z. Passengers and goods.

Cristobal-Panama City, 47 miles.

▼

Faucett Aviation Company; total operating mileage 1,200. Lima, Peru, Passengers, mail and goods.

Arequipa-Paita via Mollendo, Ica, Lima, Chimbote, Trujillo, Pacasmayo and Chiclayo), 1,200 miles.

Peruvian Navy Air Service; total operating mileage 1,100. Lima, Peru. Passengers, mail and goods:

San Ramon (La Merced) Iquitos (via Puerto, Bermudez, Masisea, Contamana, Orellana, and Requena), 800 miles,

Moyabamba-Iquitos (via Yurimaguas), 300 miles.

Porto Rico Airways; total operating mileage 100. San Juan, Porto Rico. Passengers and goods:

San Juan-Ponce, 100 miles.

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New York, Rio and Buenos Aires Line, Inc., "Nyrba;" total operating mileage 2,790. Graybar Building, 420. Lexington Avenue, New York City (care of Dr. Vicente Fidel Lopez, Viamonte 550, Buenos Aires, Argentina). Passengers, mail and goods:

Buenos Aires-Yacuiba (Bolivia) (via Rosario, Cordoba, Tucuman and Salta), 640 miles.

Buenos Aires-Asuncion (via Comcordia and Corrientes), 670 miles.

Buenos Aires-Mar del Plata, 240 miles.

Buenos Aires-Santiago (Chile), 700 miles.

Buenos Aires-Ceara (via Montevideo, Rio de Janeiro, Natal, etc.), 2,910 miles.

▼

Pan American Airways, Inc.; total operating mileage 10,067 (Pan American Grace Airways, Inc.), 122 East Forty-second Street, New York City. (Mail.) Passengers Miami to Tacna; passengers Miami-Georgetown; passengers Miami-Nassau:

Miami - Habana - Belize - Tela - Managua-David-Panama City - Cristobal, 2,074 miles.

Guatemala City-San Salvador, 125 miles.

San Salvador-San Lorenzo, 120 miles.

Cristobal-Santiago (via Buenaventura, Tunaco, Esmeraldas, Guayaquil, Talara, Paita, Trujillo, Lima, Mollendo, Ilo, Tacna, Arica, Antofagasta, Copiapo and Ovalle), 3,071 miles.

Buenos Aires-Santiago (via Mendoza and Rufino), 708 miles.

Buenos Aires - Montevideo, 120 miles.

Cristobal-Cartagena, 446 miles.

Cartagena-Barranquilla, 175 miles.

Barranquilla-Curacao, 461 miles.

Miami-Habana, 261 miles.

Habana - Santa Clara - Camaguey-Santiago de Cuba-Port au Prince, Santo Domingo-San Juan, 1,184 miles.

San Juan-St. Thomas-St. Johns-Castries-St. Pierre-Port of Spain, 752 miles.

Port of Spain-Georgetown, 380 miles.

▼

Pickwick Airways, Inc.; total operating mileage, 2,709. Pickwick Terminal Building, Los Angeles, Calif.

Pickwick Latin American Airways. (Pickwick Latino-Americana, S. A.). 5 de Mayo, No. 7. Mexico, D. E. Passengers, mail and goods:

Mexico City-Mazatlan (via Morelia-Guadalajara-Tepic), 590 miles.

Mazatlan-Nogales (via Culiacan-Sinaloa-C. Obregon-Guayamas-Hermosillo), 666 miles.

Nogales-Tiajuana (via Mexicali-Zaragoza), 369 miles.

Mexico City-Guatemala City (via Puebla-Oaxaca-San Jeronimo-Tonala-Tapachula-Mariscal), 732 miles.

Tonala-Tuxtla-San Cristobal-Comitan-Tapachula, 227 miles.

Guatemala City-San Salvador, 125 miles.

CONTROL PLANS

(Continued from Page 2.)

include a wide variety of devices. Varicolored flags are used in some cases. At a western airport, red and green semaphores, operated from the control tower, are employed. At night, red lights are placed on these semaphores. Three other western airports have erected two steel panels, red on one side and white on the other, which are used to control transport planes in flight. The Very pistol, red and green illuminations of the wind tee, and blinking of the boundary lights, are night signaling methods.

"At still another western airport, experiments are being carried on with signal lights mounted at the ends of runways; but the system has been in use too short a time to give the committee an opinion regarding its feasibility.

"An investigation has been made of the systems in use at foreign airports, including Croydon, England; Tempelhof, Berlin; and Le Bourget, Paris. The problems at these ports, however, differ from those encountered on a larger terminal airport in this country as operations abroad are confined to almost entirely to scheduled transport.

"The majority of those canvassed stressed radio communication in the suggested systems submitted. One authority proposes separate areas for landing and taking off, and stop-and-go lights at the head of the take-off runways. An airport engineer favors a visual system complete in itself and aural and radio signaling as auxiliaries. A system employing steam jets to be illuminated at night will be installed at an eastern airport. At another in the Middle West, it is proposed to install a panel of lights which will indicate the number of planes in the air at any particular time. Meanwhile a number of lighting companies and engineers are carrying on experimental work to solve this problem, and the committee will be promptly advised of the result.

"The following have been designated to serve on this committee: Harry H. Blee, (chairman) Aeronautics Branch, Department of Commerce; Charles H. Helms, National Advisory Committee for Aeronautics; F. C. Hingsburg, Bureau of Lighthouses, Department of Commerce; Lt. Newton Longfellow, Army Air Corps, War Department; Dr. J. Franklin Meyer, Bureau of Standards, Department of Commerce; James P. Murray, Aeronautical Chamber of Commerce; Comdr. F. D. Wagner, Bureau of Aeronautics, Navy Department; and A. Pendleton Taliaferro Jr. secretary), Aeronautics Branch, Department of Commerce.

"The committee invites suggestions from all persons who may be interested in the subject. These suggestions should be addressed to A. Pendleton Taliaferro Jr., secretary of the Committee on Standard Signal Systems for Airports, Aeronautics Branch, Department of Commerce, Washington, D. C."

Aviation's Position

[Continued from Page 1.]

casts of weather conditions. In the near future we shall undoubtedly have transcontinental air passenger service which will carry us from coast to coast in from 24 to 30 hours; and we shall later have transoceanic service for both passengers and cargo.

Outstanding developments in 1929 include the unprecedented linking of airlines with railroads, steamship service, and automobile bus lines; aircraft production, which has grown from about 300 in 1921 to more than 6,000 in 1929; and the marked increases registered by all types of aeronautic licenses issued by the Department of Commerce. Further developments during the year include the practical application of the "mecaviator," an automatic mechanical robot which has flown an airplane from Dayton, Ohio, to Washington, D. C.; the improvement of the radio range beacon and other instruments for increasing the safety of all types of flying, particularly flying in fog; the earth-girdling flight of the Graf Zeppelin in less than 22 days; the new speed record of more than 337 miles per hour attained subsequent to the Schneider Cup Races; the recent round trip from New York to Los Angeles and return in less than 37 hours flying time; and the epochal flight to the South Pole. These and other important achievements have combined with the day-in and day-out demonstration of aviation's safety, reliability, and utility to convince a steadily growing percentage of the population that aviation is here and here to stay.

During the coming year the Government will continue its extension of the Federal airways system and leave no stone unturned to foster and develop air commerce. While 1930 is to be a period of constructive readjustment, the entire aeronautic industry will continue its progress in a sound economic way. New and additional air mail contracts will, doubtless, be awarded; and a still greater use of air transport services for passengers and merchandise, as well as mail, will be made. These and other developments of a similar nature will be carried forward in an orderly fashion and will be contributing factors to making 1930 a year of sound progressive aeronautic development.

Address delivered at dinner given in New York, Feb. 7, by New York State Aviation Commission.

NEW YORK'S REPORT

[Continued from Page 3.]

in 1928 requiring all pilots and planes operating within the borders of the State of New York shall have the necessary form of license both for the pilot and plane as would be required by the Federal Government if they were operating intrastate, is working out most successfully. The enforcement of this act was placed with the department of State police who make regular monthly inspections of all planes at the various airfields within the State and of all pilots operating them.

Many complaints have been received by the commission from residents, particularly on Long Island, of planes flying dangerously low or conducting acrobatics with insufficient altitude. While no criticism has been found whatsoever of the enforcement by the Department of Commerce of its air rules and regulations, nevertheless it has been felt that it would be wise to allow police officials to prosecute violations of these Federal rules. This would relieve to a great extent the burden placed upon the Department in tracing down these various complaints, many of which are found to have been made erroneously.

It is felt that there should be some affirmative statement made by the legislature relative to the liability of the owner, proprietor or operator of airfields in accident cases.

Perhaps one of the most constructive and successful undertakings of the commission was the establishment and operation of the State aviation weather bureau system. The system makes no effort at forecasting, but consists solely in obtaining aviation weather conditions from 28 stations throughout the State. The observations are taken twice daily at 8 a. m. and 12 noon and telegraphed to our weather bureau office at Albany.

The policy of this commission might best be described as constructive conservatism. With the tremendously rapid development of aviation within the past two or three years with no background to refer to, it is easy to make recommendations and put into effect policies which will later be found harmful. We have endeavored to follow a middle course and it would seem from results actually accomplished so far that these policies are functioning smoothly and efficiently.

We can not too strongly reiterate our absolute and complete faith in the future for aviation. This, the fastest known method of transportation, in conjunction with radio, the fastest known method of the transmission of speech, will form a combination of safety and speed the possibilities of which are nearly beyond human imagination. Commercial aviation demands the most vigorous discipline from its personnel, the most constant energy from its executives, and the keenest exactitude, care and attention to its equipment. When the public realizes these conditions exist, its wholehearted and enthusiastic support will be thrown behind the science, in all its phases, with such force that its future will be irresistible.

J. Griswold Webb, *Chairman*,
Herbert B. Shonk, *Vice Chairman*,
Willis H. Sargent, *Secretary*,
John Knight,
Henry D. Williams,
A. Spencer Feld,
Joseph A. McGinnies,
Ansley B. Borkowski,
Wilson Messer,
Edward J. Coughlin,
Peter J. Brady,
John Dwight Sullivan.

GREEK AIR MINISTRY

A ministry of aviation was established in Greece by law, Dec. 23, 1929, to handle military and civil aviation and to control aircraft manufacturing and air transport in Greece, according to a report by Ralph B. Curran, Assistant Commercial Attache, Athens, Greece, issued by the Department of Commerce. All aviation services and offices heretofore under the ministries of war, marine and communications, as well as all installations, buildings, and equipment relative to aviation, were transferred under the ministry of aviation. Plans for the improvement of airports and the promotion of commercial aviation are being made.

SELECTION OF SITES

[Continued from Page 4.]

sample of silty clay loam soil drained from 6 to 8 times as fast as the same soil laboratory treated. Considering this factor, the lines of the tile may be from 10 to 15 times as far apart in a fine to medium sand as in a silt. A comparative study of Systems Nos. 6 and 7 proves that this estimate is fairly correct. In System No. 7, where the subsoil is silt and silt loam, laterals spaced 160 feet apart were found to be absolutely necessary to drain the soil, while in System No. 6, where the subsoil is a medium sand, main tile lines located one-quarter mile apart were sufficient for proper drainage."

In the absence of other means the coefficient of permeability performed on undisturbed soil samples as proposed by Dr. Terzaghi seems to furnish the most promising means for estimating the spacing of drains in airports. Direct field observations to supplement the laboratory determination also may prove helpful.

A KNOWLEDGE of this coefficient serves to disclose (a) the rapidity with which precipitated water is apt to enter the topsoil, and (b) the velocity with which ground water percolates through the subsoil.

A knowledge of the rapidity with which water enters the top soil furnishes an indication of the amount of surface water to be disposed of (run-off factor) and a knowledge of the velocity of percolation furnishes an indication of the rate at which ground water is apt to reach the drains.

The rate of percolation of water through soils, according to Darcy, is expressed by the formula (13):

$v = c\,p/h$ when

v = the velocity of moving water
p = the difference in pressures existing at two points in a soil column
h = the distance between these two points
c = a constant whose value depends upon the character of the soil, especially the size of the soil grains, and which must be determined experimentally.

Considering only the size of soil particles, it can be seen that with equal porosity and equal frictional resistance per unit area of soil particles, c will decrease with decreasing size of soil particles due to increase in the total surface area of the soil particles.

According to Oscar Edward Minzer (14), for instance, the total surface area of a cubic foot of sand composed of grains 1 mm. in diameter is about 200 square feet that of a cubic foot of silt composed of grains .02 mm. in diameter is about 50,000 square feet or more than 1 acre, and that of a cubic foot of colloidal particles .001 mm. in diameter is about 1,000,000 square feet or more than 20 acres.

It has been determined that:

(a) The velocity of percolation varies directly with the distance between laterals.

(b) The velocity varies approximately with the depth of drains.

Furthermore, with respect to the direction of percolating water W. J. Schlick has demonstrated that ground water is apt to flow horizontally along impervious subsoil strata toward the drains. When the drains rest above an impervious soil stratum a portion of the water enters the drains from beneath and the remainder passes by the drains and stays in the soil. To completely intercept seepage, therefore, the drains must extend in depth to the impervious subsoil strata. Thus a particle of precipitated water entering the soil at the ground surface does not travel diagonally toward the drain, but moves vertically downward until it both meets and joins the ground water flowing in a horizontal direction.

The foregoing discussion applies only to gravitation water or that portion of the total moisture content of the soil which moves under the influence of gravity. That portion which rises in the soil due to surface tension and forms what has been termed a "capillary fringe" (by Oscar Edward Minzer (14), located above the ground-water elevation cannot be removed by artificial drainage.

The ratio of the amount of gravitational to the amount of capillary water contained in a soil varies with change in the soil character. This is illustrated by table (13) at the bottom of this page.

THE thickness of the capillary fringe depends also upon the character of the soil. The top of this fringe rises and lowers with rising and lowering ground-water elevation and as a consequence when drainage serves to lower the gravitational water elevation (ground-water elevation) it serves to lower also the elevation of the capillary fringe.

A final fact to be remembered is that water cannot enter soil containing air until after the air escapes. Rainfall of high intensity, for instance, falling upon a soil containing air is apt to trap the air between the ground water below and the water attempting to enter the soil above (13). Under these conditions the air is forced toward the drain walls and escapes through them. Consequently, the closer the drains are spaced, other things being equal, the greater is the percentage of precipitated water which is apt to enter the ground surface and enter them via percolation.

To reduce the extent of detrimental heaving of runways, drains should be placed beneath them. According to both A. C. White (15) and J. T. Henton (16), drains back filled with gravel and placed longitudinally under the center of gravel-road surfaces are effective for curing frost boils in both Minnesota and Wisconsin. Drains either located along the edges of road surfaces or laid herring bone, in contrast, have not proven effective for serving this purpose. The reason for this may be explained as follows:

Heaving due to frost is caused by the formation of well-defined ice layers in the soil instead of simple expansion of water due to freezing. (17)

Briefly, this ice segregation is due to three physical phenomena:

(a) The ability of water particles contained in soil pores larger than about capillary dimension to freeze at either normal freezing or slightly less than normal freezing temperatures (—1°—4°C.) (18).

(b) The ability of water particles contained in soil pores of capillary dimension to resist freezing at abnormally low temperatures (as low as —70°C.) (17, 19, 20).

(c) The ability of water particles of freezable size, during the process of freezing to draw to themselves from adjacent fine capillaries the small particles of water which individually do not freeze at ordinary freezing temperatures (18, 19, 20). When drawn to the existing ice crystal, however, these small water particles freeze and increase the size of the original ice crystal. Continuation of this process causes the original ice crystals to increase in size as long as they are being furnished by small water particles drawn up through the fine capillaries from the ground-water supply.

IN SANDS no important frost heave occurs (17) because practically all of the contained water freezes at normal freezing temperatures (20) and small unfrozen water particles do not exist in amount sufficient to cause the frozen particles to suffer appreciable growth.

Permeable silts (Group A-4 and A-5 material) which are capable of raising water rapidly and through distances of considerable amount, are apt to suffer very important frost heave. These silts may be capable of raising by capillarity at the rate of approximately 0.9 pound of water per square foot of soil per day when the ground-water elevation is 4 feet below the surface of the ground (13). At this rate a layer of water approximately 5½ feet in depth would be raised during one year. In fact, an average corn crop in the Middle West for average yield may require capillary water to be supplied at approximately this rate (13).

The capillary rise may be as high in cohesive clays as in silts. The speed with which water rises in clays, however, is much less than in silts. Consequently, in dense clay soils (Group A-6) with low ground-water level and absence of lateral seepage, only limited amounts of water are available for ice segregation. Under these conditions the soil adjacent to the growing ice crystals is apt to dry out and shrink due to the loss of moisture (22). The ground-water elevation in clays, therefore, must be comparatively high in order that important frost heave may occur.

Additive to the detrimental effects of heaving is the softening of the subgrade during thaws due to the liberation of excessive amounts of water trapped by both frozen undersoil and frozen shoulders.

Due to a variety of causes frost depth under runways is apt to be greater than under shoulders. Also thawing is apt to occur first under the roadway, therefore, water liberated in this manner cannot penetrate the frozen soil along the edge of the runway and reach the drain located there. Thus the drains must be placed at the location of maximum frost depth which is apt to coincide with the location of initial thawing. In this respect the center drain, according to Henry Aaron, United States Bureau of Public Roads, and L. L. Allen, Minnesota State highway department, serves (a) to lower the moisture content of the soil before freezing and (b) to provide for the disposal of water liberated by thaws.

THUS one sees that the design of a drainage system is quite a complicated affair, and differs with changing field conditions.

A knowledge of the basic laws controlling the performance of water in soils as discussed above, however, assists one to design for different current conditions.

Recommendations for draining runways, for instance, may be stated as follows (11):

With low ground-water level no drainage seems necessary in the porous varieties of Group A-2 and A-3 subgrades. Drainage to remove surface water in Group A-1, Group A-4, Group A-5, A-6, and A-7 subgrades.

In addition, drains to reduce the moisture content of the soil prior to freezing and to carry away the water liberated during thaws, should be placed under runways resting upon porous Group A-4, all Group A-5 and porous flocculated clays of the Group A-7 variety. Also drains should be employed to lower high ground-water level when existing in all soils.

Especially important with respect to frost heave (according to W. I. Watkins, United States Bureau of Chemicals and Soils; E. A. Willis, United States Bureau of Public Roads, and John Morton, New Hampshire State highway department) are soils consisting of sand to a depth of as much as 12 or 18 inches underlain with silt zone (Group B-1 subgrade) which sag and permit water to accumulate. In extreme cases of this character the proper remedy may consist of excavating the subgrade to a depth slightly greater than the depth of frost penetration, coating the soil with bitumen material and back filling with a good A-3 material (11).

When the ground water elevation is very low and an impervious topsoil (dense varieties of both Group A-4 and A-6 subgrades) is underlain with a porous soil zone only properly back filled trenches are required to dispose of surface water by draining it into the porous under-stratum of soil.

When the landing field soil consists of a dense impervious clay (Group A-6 variety) the runoff factor will be high, causing the drains to function primarily for removing surface water. The spacing of drains, therefore, depends upon both the slope of the field and the resistance of the soil to erosion, and in this instance may equal 100 feet or more, due to the fact that this soil is apt to furnish high resistance to erosion. In plowed fields where the precipitated water cannot run off, the drains have to be spaced much closer. This serves to illustrate one difference between agricultural and airport drainage.

When the soil profile consists of porous silt (Group A-5) to a depth of 3 to 4 feet, underlain with a dense impervious clay (Group A-6) a condition exists similar to that productive of frost boils. In this case, however, impervious undersoil, instead of frozen undersoil, traps the water.

According to observations made by A. M. Wintermeyer, United States Bureau of Public Roads, for instance, silt containing entrapped water on Columbia Island, D. C., possessed at a depth of 15 inches a moisture content equal to approximately 230 per cent of the volume of the soil particles.

Thus, this type of Group B-1 subgrade furnishes a radical case in which the drains must serve to remove both the surface and the ground water as quickly as possible and is complicated by the fact that silt topsoil is apt to erode quickly. Consequently, drains in this case may of necessity need to be spaced not more than 30 or 33 feet apart.

Instead of attempting to drain soft peat and muck soils (Group A-8) cover them with a layer of good material at least 3 feet thick in locations where frost does not occur and about 4 feet thick where frost is apt to occur in appreciable amount. Mucks will probably serve airport purposes better when wet and covered than when dry and uncovered.

In the latter case the organic matter if in a colloidal state advanced stage of decomposition) will possess detrimental shrinkage properties, and otherwise it will possess elasticity in detrimental degree.

In this connection W. D. Archer (23) states: "The air existing over fields resting on swamps is apt to be 'bumpy' due to different amounts of moisture entering the air at different locations over the field." He suggests the careful planting of grass over the entire field (soil and sand pits) and the covering of buildings with non-heat reflecting roofing material to reduce as much as possible the extent of this bumpiness.

Generally, drains should extend in

[Continued on Page 11, Column 1.]

Equivalent thickness of soil and moisture in 4-foot depth of mixture.

Soil Type	Thickness of soil, Inches	Thickness of water, Total, inches	Capillary not removable by drainage, inches	Gravitational removable by drainage, inches
Sand	23	25	7	18
Silt loam	23	25	13	12
Clay	20	23	21	7
Muck	9	39	29	10

Pointers on Patents

44 "Inventors" All wanted the same Patent

O. M. Morse invented a suction cleaner for urged a Patent immediately. However, Morse purifying the air of flour mills. His attorney decided to "try it out" in a few plants first.

But it was tried out so extensively, by ambitious imitators that, all told, exactly forty-four applications were filed in the Patent Office on the same invention! And because Morse was among the last to apply, the odds were heavily against him. After lengthy legal proceedings he finally won his case—but—it cost him thousands of dollars and the loss of the profits he should have been making meanwhile.

"Be sure you're protected; then go ahead." A Patent should be obtained as soon as possible, regardless of any delays that may be anticipated in manufacturing or marketing the invention. Contrary to public opinion, the words "Patent Pending" or "Patent Applied For" are not a complete safeguard against infringement. Unscrupulous persons still may file opposing claims with the Patent Office, and perhaps even seriously delay the granting of the Patent to the real inventor.

Protection Begins With Precaution

A written Record of Invention, properly witnessed and dated, has often saved inventors and manufacturers their Patent rights and litigation costs as well. We will gladly give you assistance, without obligation, in drawing up such a record. In our files your idea is safe.

With an organization of thorough and experienced ability, we have helped thousands of inventors and manufacturers with the necessary steps in obtaining Patents and Trade Marks. In our hands your Patent Application has the advantage of our close familiarity with, and success in, Patent Office procedure.

Those interested in Patents, Trademarks or Copyrights are cordially welcome to the booklet "Patent and Trademark Protection;" it tells each step of procedure required by the Patent Office and answers your questions — and also to my Record of Invention form. My several thousand clients, in every State in the Union, have found them helpfully worth having. Mail the coupon TODAY; they will be sent to you immediately.

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TESTS OF SEAPLANES

[Continued from Page 7.]

per square inch at D, and 2.8 to 4.1 pounds per square inch at H. At the same time it was less than 3.1 pounds per square inch at A, 4.5 pounds per square inch at B, 4.3 pounds per square inch at E, and 2.5 pounds per square inch at stations F, G, K, and L. During other maneuvers large sustained pressures were recorded at some other stations. At station A, 5.3 pounds per square inch was almost continuously exceeded, and at B 5.4 pounds per square inch was intermittently exceeded during taxiing run 24. During taxiing run 20 a sustained pressure of 2.4 to 3.1 pounds per square inch was recorded at station E, and in taxiing run 21 a sustained pressure of 3 to 3.9 pounds per square inch existed at E. Station O, abaft the step, indicated a sustained pressure of 2.1 to 3.5 pounds per square inch during taxiing run 15, while at P during the same run 2.1 pounds per square inch was only exceeded intermittently. In each of these taxiing runs the location of the sustained pressure was dependent on the attitude of the float. The pancake landing is particularly important by reason of the high local pressure which travels from the stern to the bow and the large total load indicated by the acceleration at the c. g. It appears permissible to assume for this maneuver that a sustained pressure of 3 pounds per square inch exists over the bottom from the step forward to the position of the high-pressure area at any instant. From results obtained in the negative pressure tests, discussed later, it is considered that the pressure abaft the step is neglible when the high pressure is forward.

Without records which show the exact simultaneous pressures over the entire float bottom is it impossible to determine an actual load distribution accurately. It is possible, however, to arrive at a probable load distribution from a study of the high local pressures and the low sustained pressures measured for the same maneuvers but on different runs. The sustained pressure likely to prevail in a severe pancake landing have been discussed above. The area subject to high pressure at a given instant in a pancake landing is determined from the pressure-travel curves.

The intersections of a time ordinate with the pressure-travel curves (A) and (B) of Figures 10 and 11 determine four abscissas which are projected down to their respective positions on the lines of the keel and chine stations. These four points determine two sides of the area subject to pressure in excess of 5 to 6 pounds per square inch, which is bounded by the keel and chine on the other two sides. The actual magnitude of the pressure in this area is determined from the pressures given by the maximum pressure distribution curve of Figure 1. The areas subject to high pressure, as thus determined, are shown by the shaded areas in Figures 2 and 3 on one-half the projected float area. The intervals are chosen to show the areas when the high pressure is under the c. g. in the middle of the forebody, and near the bow. In the middle of the forebody the high pressure area is a maximum, although the pressure is not. The projected area is used because only vertical loads are considered. The boundary lines of the areas are not perpendicular to the the keel because of the lag in transverse distribution of pressure.

A rectangular representation of the load distributions at three successive intervals during a pancake landing is given in Figure 4. The high pressure at a given instant is represented by a rectangle with a height equal to the pressure on the area in pounds per square inch. The width is that of an area equivalent to the actual area subject to high pressure as given in Figures 2 and 3, but with sides perpendicular to the keel. It is found by dividing the actual high-pressure area by the width of one-half the float. The lower sustained pressure is represented by another rectangle with a height representing a pressure of 3 pounds per square inch and a width extending forward from the step to the high-pressure area. The combined areas of these two rectangles multiplied by the width of both floats is the total vertical water load. Thus,

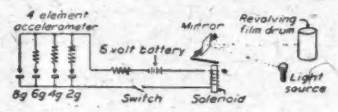
$$L = \frac{a \times 2b}{W} \times W.$$

when

a=combined area of load rectangles.
b=width of one float=26 inches.
W=gross weight of seaplane=2,150 pounds.
L=total vertical water load.

The actual weight is substituted only in the denominator so that L is given in the terms of W.

The three load distributions of Figure 12 represent the worst conditions of the two pancake landing runs 55 and 56. Case 1 represents the distribution with the high-pressure area under the c. g. and was taken from run 56. Cases 2 and 3



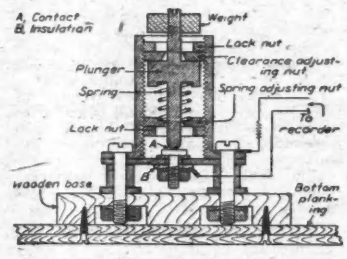


Figure 6.—Cross Section of One Element of Accelerometer and Diagram of Recording Circuit

were taken from run 55 and represent the distributions when the high pressure is extended over a maximum area in the forebody and when is is near the bow, respectively. The distribution forward in this landing was unusually bad.

The maximum total load thus derived is 6.8 W, where W is the weight of the seaplane. The maximum load indicated by the accelerations measured at the c. g. is 4.3 W. The maximum acceleration was not obtained for run 55 and it is possible that it was slightly greater than the 4.3 g. determined in a similar landi g. It is likely, however, that the chief cause for the discrepancy is inaccuracy in the assumed load distribution, particularly in the sustained pressure extending from the step to the high-pressure area. A small difference due to flexibility of the structure is also to be considered, and there is a possibility that the load is unequally distributed between the floats. The time at which the maximum accelerations occurred in the pancake landings is in fair agreement with the load distributions shown, as the maxima occurred when the high pressures were well forward. The load distributions are, therefore, probably representative of

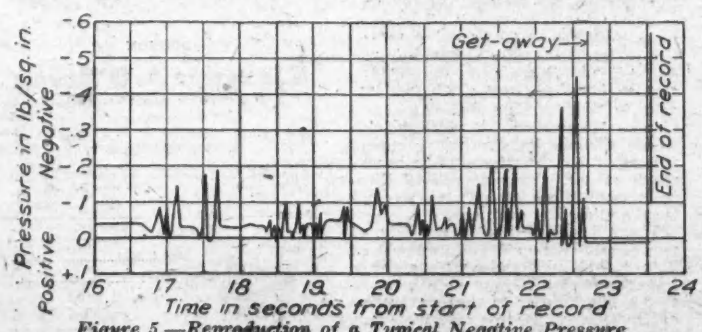


Figure 5.—Reproduction of a Typical Negative Pressure Record Showing Rapid Fluctuations of Pressure Near Get-Away.

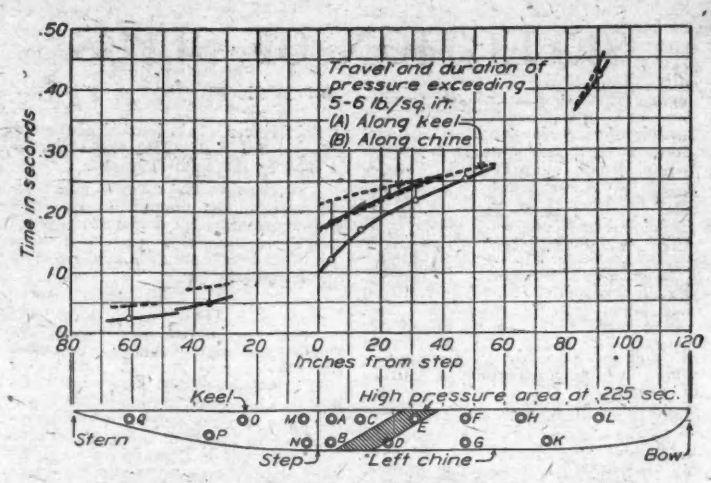


Figure 3.—Travel of High Local Pressure over the Float Bottom in Pancake Landing, Run 56. Water Speed 47 to 42 M. P. H., Smooth Water.

actual conditions with the exception that the magnitude of the computed total load is possibly somewhat greater than that actually experienced.

The point of application of the resultant force may be determined from the load distributions given, but the direction of the resultant is unknown. It does not pass through the c. g. when the resultant is forward as there is considerable angular acceleration. The magnitude of this angular acceleration can not be determined accurately from the float angle records, but the record for pancake landing run 44 shows that it may be as great as 10 radians per second. This shows that the resultant must pass considerably forward of the c. g.

The load distribution abaft the step can not be determined by the method used for the forebody since no continuous pressure travel curves were obtained. However, the accelerometer at the center of gravity recorded 1.8 gravity when the high pressure was abaft the step in pancake landing run 56, and at the same time the float bottom accelerometer exceeded 2 g. Stations Q and P both recorded very high pressure in this landing and the resultant load is, therefore, probably applied between these two stations or about 4 feet abaft the step, and is of considerable importance.

Simultaneous values of the negative pressures at intervals during take-off have been recorded with the corresponding air speed, float angle, and approximate water speed; and in a figure accompanying the table the locations of the pressure orifices are shown. The pressures were read at several intervals from continuous records taker from opening of the throttle to get-away. The intervals were chosen so as to include high pressure throughout the runs and are timed in seconds from the start of the take-off.

At low speeds negative pressures were sustained and existed over a small area extending a few inches abaft the step. At high speeds this area extended back along the keel more than 2 feet, but not along the chine, and the pressures were sharply fluctuating as shown in Figure 5. At intermediate speeds the pressures abaft the step were nearly zero but in some cases there were small peak pressures at intervals corresponding to the period of oscillation of the seaplane. These variations were most noticeable at stations 1, 3 and 4, at which they occurred simultaneously, but the peaks were usually positive at station 3 instead of negative as at 1 and 4. At station 5 the pressure was unusual in that it showed no sharp fluctuations. Forward of the step the pressure was always positive.

The largest negative pressures were recorded at stations 1 and 2 immediately abaft the step and occurred with the control neutral at water speeds of from 9 to 15 miles per hour. The highest value obtained was 0.87 pound per square inch, which is of small structural importance. At high speeds the pressures fluctuated rapidly and there is a possibility that this might cause considerable vibration of the bottom skin.

The negative pressures were influenced by the speed and float angle. One of the forces determining the float angle is the force on the elevators. It was found that with the control held back the sustained negative pressure abaft the step at low speeds was largely eliminated, and that the longitudinal acceleration during take-off was steady. With the control neutral or forward the negative pressure at low speeds was high and sustained for a period of several seconds, during which the acceleration was very slight.

It is considered that the maximum pressures obtained were excessive for the TS-1 float, since both floats were damaged during tests and eventually ruined in a landing apparently no worse than others for which records were obtained. The complete failure was probably caused by the repetition of hard landings on floats which had had considerable service. The final failure was in the planking, stringers, and stringer bracing a short distance forward of the step. This indicates a failure due to local pressure which is not necessarily coincident with maximum moment or total vertical load.

Large total loads as well as high local pressures result from pancake landings with large float angle. In addition, the maximum resultant force is well forward of the c. g. which imposes a large moment. The direction of this resultant force was not determined because no measurements of the longitudinal components of either force or acceleration were made, but the existence of considerable angular acceleration shows that it does not pass through the c. g.

The maximum pressure on the TS-1 was about 10 pounds per square inch and on the UO-1, 6.5 pounds per square inch. High pressures were experienced near the bow of the TS-1 and not on the UO-1. The higher pressures on the TS-1 are probably due to nequal distribution of the load between floats, the generally higher speed, and the smaller angle of V. The speed of the TS-1 for comparative maneuvers is 5 to 10 miles per hour higher than for the UO-1; and the angle of V is 3 degrees less at the step and 10 degrees less at corresponding positions near the bow. The peak pressure near the bow is probably due to the small angle of V and the gradually rising keel line. It is probably influenced also by the location of the c. g., which is 6 inches farther forward on the TS-1 than on the UO-1 float.

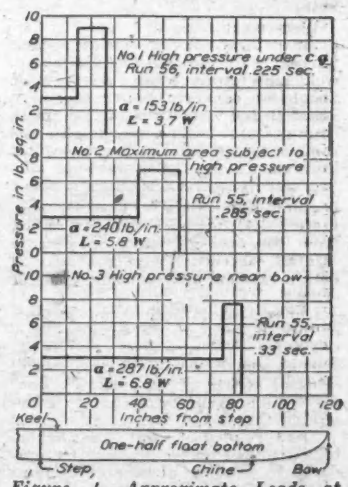


Figure 4.—Approximate Loads at Three Intervals for a Severe Pancake Landing.

The negative pressures are of small magnitude, and the investigation shows that it is reasonable to neglect pressure abaft the step when consid-

ering total loads with a pressure peak forward of the step. The results indicate a relation between negative pressure and float resistance which is possibly of sufficient importance to warrant a more complete investigation of this relation.

The results of this investigation apply only to the TS-1 seaplane as used in these tests. The effect of variations in speed, float shape, and other characteristics likely to be different in other designs is probably considerable on both the magnitude and distribution of pressures.

Maximum pressures as high as 10 pounds per square inch are most likely to occur at the step, but under some conditions of landing, pressures of practically the same magnitude may also occur at the stern and near the bow.

The only part of the float on which no large pressure occurs is a limited area immediately abaft the step in which a maximum negative pressure of 0.87 pound per square inch was measured.

Maximum pressures are always confined to a small area at any instant and last approximately one-twentieth to one-hundredth second at any given location.

Sustained pressures are always small compared to the maximum pressures and are greatest near the step.

The worst distribution of pressures and the greatest acceleration at the c. g. occurred in pancake landings and were principally due to the development of a high pressure near the bow.

The negative pressures which exist abaft the step appear to be of small consequence structually, but may be of sufficient interest in a study of float resistance and trim to warrant a more complete investigation.

A vertical component of acceleration of 4.5 g. at the c. g. is not likely to be exceeded in a safe landing.

Acceleration of the float bottom is probably 1 to 2 g. greater than that at the c. g. in hard landings.

In future investigations of this sort the longitudinal component of acceleration at the c. g. should be measured.

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SELECTION OF SITES

[*Continued from Page 9.*]

depth to an impervious subsoil zone when one exists within 3 feet of top of the ground where freezing is not apt to occur and when one exists within 4 feet of the top of the ground where freezing in appreciable amount is apt to occur.

When no impervious under zone exists, extend drains to a depth of about 3½ feet in clays and 5 feet in silts where freezing does not occur. Otherwise drains should extend to a depth equal to at least the depth of frost penetration.

The quantity of surface water to be removed at any point in the system depends upon the rate of rainfall, the size of the area to be drained, the surface runoff factor and the time allowed for the removal of the water.

Rainfall data may be obtained from the nearest station of the United States Weather Bureau.

The surface runoff factor may be assumed to be approximately as follows:

Watertight runway surfaces, asphalt runways in good order, about 90 per cent; concrete runways with well maintained joints and cracks, about 80 per cent; oiled runways, about 70 per cent; untreated macadam runways, about 40 per cent; undrained turf, about 20 per cent; well drained turf, about 5 per cent.

A period of three hours from the beginning of the storm has been suggested (24) for removing the runoff from an average maximum hourly rainfall exceeded but once a year as both a rational and economic basis of design.

United States Department of Agriculture Bulletin No. 854, "The Flow of Water in Drain Tile," by D. L. Yarnell and Sherman M. Woodward, contains charts which furnish a convenient and accurate means for determining the size of drain tile.

The type of drain should be such as to withstand the heavy impacts produced by landing airplanes. Failure of a drain under these conditions may mean not only the cost of a new drain, but possible loss of life also.

Highway research conducted by the Iowa engineering experiment station in cooperation with the United States Bureau of Public Roads furnishes a means for computing the safe load of drains under both different heights and different types of back fill material.

This matter is very ably discussed by Harry E. Cotton under the title "Strength of Drain Pipes for Airports" and published in "Airway Age," October, 1929.

The Construction of Drains. It seems customary to place perforated corrugated metal culverts with holes downward upon a porous base several inches thick. Tile or cement culvert pipe may be laid either on a prepared base or directly on the trench bottom, and some engineers recommend that the joint tops be covered. The prepared base may serve to keep the tile aligned.

Engineers seem to agree that trenches containing airport drains should be back filled with porous materials. This porous material for trenches located in cohesive soils (Group A-6 and A-7) which are not apt to flow when wet, may consist of gravels, crushed stone, slag, etc. For trenches located in cohesionless silts which are apt to flow when wet (Group A-4 and Group A-5 material) sand may serve as an efficient back fill material. The top six or eight inches of the fill should possess stability necessary to support the airplane wheels. And this might be furnished by either a sand containing small amounts of clay or crushed angular rock fragment 2 to 3 inches in size. The tops of these trenches must be maintained at all times level with the adjacent ground surface. It has been suggested that light-colored rock used to top drains located along runways may serve also to mark the runways.

Finally it must be kept in mind that an airport drainage system is primarily a storm sewer system and, therefore, should include the construction of manholes or other appurtenances necessary to permit either examination of or the cleaning out of drains, for absence of proper maintenance may cause the most perfectly designed drainage system to become defective.

One sees from the foregoing discussion that to drain airports thoroughly constitutes a complex problem and is apt to involve expenditure in appreciable amount. Consequently, select if possible a location which drains naturally.

When this is not practical, employ an expert drainage engineer to design a complete system according to which drainage units may be installed as required.

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As presented before the Municipal Airport Conference, this paper included formulae and figures developed by Messrs. Hogentogler and Robeson.

Cuba's Rules

[*Continued from Page 4.*]

No. 7-C, as issued by the United States Department of Commerce.)

Returning to the United States.—1. Before final departure from Cuba, the pilot must report to the Cuban customs.

2. The person having charge of any aircraft arriving in the United States from any foreign port, whether such flight is made for pleasure or commercially, must comply with the requirements of Entry and Clearance of Aircraft Regulations. (Aeronautics Bulletin 7-C.)

Furthermore.—1. No photographic apparatus shall be installed in, nor shall any photographs be taken from, any aircraft while operating in or over Cuban territory unless specific authorization is previously obtained from the War Department of Cuba for the installation of photographic apparatus and to take photographs.

2. American pilots may not engage in commercial aviation within Cuban territory, unless given specific authority to do so by the aviation section of the War Department of Cuba. American-registered aircraft may not be employed in such work.

3. If the aircraft is licensed to carry passengers in the United States, it may do so between the United States and Cuba or vice versa, providing that authorization from the War Department of Cuba has been obtained to enter Cuba by the air, but it may not carry passengers between points within Cuba, except in the case of through passengers making a landing en route. When passengers are carried in accordance with the preceding, the owner or pilot of the aircraft should make arrangements with the Cuban Department of Immigration for their proper entry.

SPAIN'S PLAN

THE Spanish government, according to a report by Julian C. Greenup, Trade Commissioner, Madrid, issued by the Department of Commerce, has entered into a contract with the Compania de Lineas Aereas Subvencionadas ("Classa") in which it agrees to grant a minimum subvention of 1,500,000 pesetas annually for 12 years for maintaining the following round-trip services:

National lines: Madrid-Barcelona, with the right to call at Valencia; Madrid-Valencia, if the former does not call there; Madrid-Porrino; Madrid-Burgos; Madrid-Sevilla-Cadiz; Sevilla-Larache, with call at Tetuan; Barcelona-Valencia-Alicante-Malaga-Sevilla; Barcelona-Palma de Mallorca; Viga-Coruna-Gijon-Santander-Bilbao-San Sebastian; Melilla-Malaga-Ceuta-Cadiz, and Cadiz-Canary Islands.

International lines: Sevilla-Portugal; Burgos-France; Madrid-Portugal; Barcelona-Italy; Barcelona-France, and Galicia-Portugal.

The government's contract with the company does not prohibit other air services, but the state agrees not to grant subventions, premiums, payment for postal services, or other financial assistance to any competing lines which may be established. The company must maintain a paid-up capital at least three times greater than the subvention. Passenger, freight, and mail rates are to be approved annually by the government. In all matters the government will keep a close check on the company. Employes receiving salaries above 12,000 pesetas a year may not be appointed without the approval of the government. The company may receive other subventions from Spanish official or private sources, but is required to render to the government annually a complete statement of receipts and expenses.

From the net profit the company will pay a maximum of 5 per cent interest to shareholders, 2.5 per cent to the government and distribute 2.5 per cent among the personnel of the lines. The remainder will be divided equally between the company and the state, although the company may receive no more than 10 per cent. Any amount due it above that percentage must be put into the reserve fund for air traffic.

A maximum of 10 per cent may be set aside annually for the amortization of buildings, 20 per cent for radio stations, and 15 per cent for other material except the following: Motors will be amortized at 500 hours of service, metallic airplane cellules for seaplanes at 1,000, and the same of mixed construction at 600. These periods of amortization will be revised by the government every four years.

Upon final termination of the contract the state will receive all of the property, assets, installations, material and every class of property in which the company may have invested money with the object of fulfilling the contract, as well as the capital. The company will receive from the state a sum equal to the difference between sums invested and the amortizations accomplished. Should the company end the contract prematurely, it will pay to the state the difference between its debts and its assets, if any, in addition to meeting the above requirements. The government may withdraw from the contract at will by complying with the requirements named and paying an indemnity, which will be interest on the paid-up capital equal to the average dividends paid up to the time of dissolution, plus interest for an additional period, permitting reinvestment of the capital elsewhere. The government reserves the right to fine the company for not complying with the terms of the contract.

DATA ON GLIDERS

For reference on the use and construction of gliders, the following documents are recommended by the Department of Commerce: National Advisory Committee for Aeronautics Technical Memoranda Numbers 443, entitled "Some German Gliders of 1920-23"; 434, entitled "Glider Construction and Design"; 439, entitled "Structural Details of German Gliders"; and 471, entitled "Technical Progress Shown in the 1927 Rohn Soaring Flight Contests"; and Department of Commerce Aeronautics Bulletin No. 7A.

A GOVERNMENT LOOKS UPWARD

NO NATION ever won a peace-time struggle more successfully than the American Government's battle for the development of aviation.

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WASHINGTON

Descriptive Nature Of Marks Bars Claim Against Competitor

Bill Inadequate for Failure to Allege Damaging Acts Other Than Use of 'High Grade' in Signs

Kansas City, Kans.—Although the plaintiff company has built up an extensive business in food products marked "Hygrade Food Products," it does not constitute unfair competition for the defendant company to employ the signs "High Grade Food Products" or "High Grade Food Store," when the latter has not imitated plaintiff's trade mark or the dress of its goods, the District Court for the District of Kansas has held.

HYGRADE FOOD PRODUCTS CORPORATION
v.
H. D. LEE MERCANTILE COMPANY ET AL.
District Court, D. Kansas.
No. 1280-N.

On motions to dismiss bill for want of equity.

Opinion of the Court

Feb. 5, 1930

POLLOCK, District Judge.—This suit was brought by plaintiff, a corporate citizen of the State of New York, against defendants, citizens of this State and the State of Missouri, to restrain defendants from unfair competition in business with plaintiff.

True, the plaintiff has a registered trade mark as has defendant, the Mercantile Company. But as plaintiff's trade mark as registered consists of a descriptive term it is quite well settled plaintiff can not by such means obtain a right to the exclusive use or a monopoly of the term because of the fact it is registered as a trade mark. See, D. & H. Canal Company v. Clark, 13 Wall. 311; Federal Trade Commission v. Klesner, 25 Fed. (2d) 524, and many other cases. And as this case is made by plaintiff's pleading it is not understood any such claim is made by plaintiff. On the contrary, plaintiff concedes it can not have or claim this from the fact merely of a registered trade mark.

Deception Alleged

What the plaintiff does claim is, that by its use of the phrase "Hygrade Food Products" that it has so built up the standard of its products by advertisements, by the doing of a very large and extensive business, the selling and dealing in food products, that when another offers food products as "High Grade Food Products" either so named or when the place of business of another is named as "High Grade Food Store" as defendants in this case do so advertise and name their places of business, those who enter such store or make purchases therein or therefrom are deceived in the belief they are there obtaining the goods handled by the plaintiff company. In other words, merely by so conducting their business the defendants are guilty of unfair competition in business with plaintiff.

The bill of complaint in this case does not claim defendants have simulated the registered trade mark of plaintiff. There is no claim defendants have dressed their goods in cartons, packages, boxes or other wrappings similar to those used by plaintiff. The sole and only charge or complaint in the bill resides in the simple fact that defendants deceive dealers and the public generally by the display or sign of "High Grade Food Products."

It is not contended defendants do not make known to the public the true names of the owners of the store or anything other than the name "High Grade Food Store" from which it is asserted defendants are engaged in unlawful competition with plaintiff. It will be noted the name of the plaintiff as displayed uses the phonetic spelling of the word "Hy" instead of the correct spelling as displayed in the advertisement of defendant. In my judgment, even this one fact, striking as it is, would indicate no intent on the part of defendants to injure plaintiff in the manner of advertising its stores. Any one with the very least intelligence and prudence in business affairs would not be deceived.

Controlling Rules Shown

What constitutes unfair competition in business has been so often and so clearly stated by eminent judges with a clear knowledge and keen understanding of the meaning and use of the English tongue that no thoughtful person can fail to understand and apply the thought by them expressed. That preeminent lawyer and great judge, Walter H. Sanborn, in Kann et al. v. Diamond Steel Co., 89 Fed. 706, states the rule as to unfair competition in the following language:

> At present, it is sufficient to say that, in all cases, where a trade mark is imitated, the essence of the wrong consists in the sale of the goods of one manufacturer or vendor as those of another, and it is only when this false representation is directly or indirectly made, and only to the extent to which it is made, that the party who appeals to the justice of the court can have a title to relief. Manufacturing Co. v. Spear, 2 Sandf. 599, 606; Canal Co. v. Clark, 13 Wall. 311, 322; Gorham Co. v. White, 14 Wall. 511, 523; McLean v. Fleming, 96 U. S. 245, 255, 256; N. K. Fairbank Co. v. R. W. Bell Mfg. Co., 23 C. C. A. 554, 77 Fed. 869, 876.

In Warner & Co. v. Lilly & Co., 265 U. S. 526, Mr. Justice Sutherland delivering the opinion of the court, says:

> The use of a similar name by another to truthfully describe his own product does not constitute a legal or moral wrong, even if its effect be to cause the public to mistake the origin or ownership of the product.

In Bliss, Fabyam & Co. v. Aileen Mills, Inc., 25 Fed. (2d) 370 (C. C. A. 4th) l. c. 372, it is said.

> It is settled, beyond all controversy, that a manufacturer has no right to the exclusive use of a descriptive word in connection with his goods, and if nevertheless he adopts such a trade mark, he himself is largely to blame for the confusion which ensues when other manufacturers, with equal right, adopt similar terms to describe their products.

In Autoline Oil Company v. Indian Refining Company, 3 Fed. (2d) 457 (D. C. Md.) l. c. 464, it is said.

> Finally, the complainant contends that it is entitled to relief, even though it may not rely upon either of its trade marks because the defendant has been guilty of acts of unfair competition, of which the court has jurisdiction by reason of diversity of citizenship. The cardinal rule is that nothing else than conduct tending to pass off one man's merchandise or business as that of another will constitute unfair competition.

No Adequate Cause Shown

In Wrizley Co. v. Iowa Soap Co., 122 Fed. 796, Judge Sanborn again said:

> The duty is imposed upon every manufacturer or vendor to so distinguish the article he makes or the goods he sells from those of his rival that neither its name nor its dress will probably deceive the public or mislead the common buyer. He is not, however, required to insure to the negligent or the indifferent a knowledge of the manufacture or the ownership of the articles he presents. His competitor has no better right to a monopoly of the trade of the careless and indifferent than he has, and any rule of law which would insure it to either would foster a competition as unfair and unjust as that promoted by the sale of the goods of one manufacturer as those of another. One who so names and dresses his product that a purchaser who exercises ordinary care to ascertain the sources of its manufacture can readily learn that fact by a reasonable examination of the boxes or wrappers that cover it has fairly discharged his duty to the public and to his rivals, and is guiltless of that deceit which is an indispensable element of unfair competition.

See, Forbes Tea & Coffee Company v. Ranney-Davis Mercantile Co., 29 Fed. (2d) 697; Federal Trade Commission v. Klesner, 280 U. S. 1; McLean v. Fleming, 96 U. S. 246; American Foundries Company v. Robertson, 269 U. S. 372, and many other cases.

I am of the opinion the bill in this case does not make out by its averments a case of unfair competition. The demurrer is therefore sustained.

Patent for Refrigerant Package Based On Natural Process Held to Be Valid

Manufacturer of Material to Replace Destructible Element Of Combination Is Contributory Infringer

New York, N. Y.—The Slate patent, No. 1595426, for a refrigerating apparatus using solid carbon dioxide, so-called "dry ice," principally used for packing for shipment food products not damaged by excessive freezing, has been held valid by the Circuit Court of Appeals for the Second Circuit.

The defendant company, which was alleged to have supplied solid carbon dioxide for use in the plaintiff's packages, was also held by the court to be a contributory infringer of the patent.

The court overruled the defense of invalidity of the patent, holding that while the use of carbon dioxide as a refrigerant had been long known in the art, the arrangement adopted by the patentee in his apparatus was not anticipated.

The patentee was stated to have reversed the usual process by placing the refrigerant in the center of the package, surrounding it with ice cream or other substance to be refrigerated, and enclosing all in a packing box or insulating wrapping.

The court held that the method of utilizing by specified physical means the operation of a law of nature is patentable, thus overcoming the objection that a law of nature may not be patentable.

It was also found not to be fatal to the patent that the solid carbon dioxide is to be destroyed by its use as a refrigerant.

The doctrine of implied license to renew perishable and subordinate parts was also held not to be applicable to the perishable solid carbon dioxide, particularly where the exclusive licensee of the owner of the patent sells carbon dioxide with a license to use it in the package described in the patent.

AMERICAN PATENTS DEVELOPMENT CORPORATION, ETC., ET AL.
v.
CARBICE CORPORATION OF AMERICA.

Circuit Court of Appeals, Second Circuit.

Appeal from the District Court for the Eastern District of New York.

CHARLES NEAVE (GEORGE C. DEAN and CLARENCE D. KERR, of counsel), for appellants; DARBY & DARBY (SAMUEL E. DARBY JR., of counsel), for appellee.

Before L. HAND, SWAN and AUGUSTUS N. HAND, Circuit Judges.

Opinion of the Court

Feb. 3, 1930

Upon the trial of the plaintiffs' suit for patent infringement the defenses were invalidity and noninfringement. From a decree finding no infringement and dismissing the bill of complaint, the plaintiffs have appealed. Reversed.

American Patents Development Corporation is the owner by assignment of United States Patent No. 1595426 to Thomas B. Slate for a "refrigerating apparatus," or, as it is described in several claims, a "transportation package," consisting of a combination of three elements, namely, an outside container or shipping case, solid carbon dioxide, which is the refrigerant, and the foodstuffs to be refrigerated. The other plaintiff, Dry Ice Corporation, has been granted an exclusive license under said patent. It manufactures and sells solid carbon dioxide, which it calls "dry ice," and purchasers from it are authorized to use, and do use, the substance so purchased to make the transportation packages described in the patent in suit. The defendant Carbice Corporation of America is likewise a manufacturer and seller of solid carbon dioxide, which it markets under the trade name of "carbice." It is charged with contributory infringement in that it persuaded a former customer of the Dry Ice Corporation to purchase defendant's carbice, with the intent that such customer should use it to make the patented package, which he did. The opinion below is reported in 25 F. (2d) 730.

Novel Arrangement Is Claimed by Patentee

SWAN, Circuit Judge.—The patent in suit relates to the refrigeration of perishable products of a sort not to be damaged by excessive freezing, such, for instance, as ice cream, by packing them around a block of solidified carbon dioxide, and enclosing the whole mass in a box or shipping case. Carbon dioxide (CO_2) may exist as a gas, a liquid, or a solid, depending upon the conditions of temperature and pressure to which it is subjected. As a solid it has an excessively low temperature—approximately minus 140 degrees Fahrenheit. When solid carbon dioxide absorbs heat it sublimes, that is, it evaporates as a gas without passing through the liquid state. This gas is itself very cold, having a temperature of minus 110 degrees. The rate of evaporation is slow, and one volume of the commercial solid carbon dioxide will evolve approximately 500 volumes of gas. These facts were known long before the patentee Slate entered the field. Prior patents show machines and processes for producing solid carbon dioxide and molding it into bricks or blocks. They suggest its use as a refrigerant and as a substitute for water ice, but none of them suggests the arrangement of refrigerant and things to be refrigerated which the patentee insists upon.

The prior art had taught that a refrigerant should be so placed as to be more accessible to heat than the products to be refrigerated. In the ordinary ice box, the water ice is placed in a compartment at the top and the interior of the box is cooled by the circulation of convection currents of air. The accepted practice in shipping ice cream was to pack ice and salt in a container with the can of ice cream in the center, cooling being effected by conduction. Slate reversed this process. He put the refrigerant in the center of the package, surrounding it with the ice cream or other substance to be refrigerated, and enclosing all in a packing box or insulating wrapping. Thus the foodstuff itself is made to help to insulate the solid carbon dioxide against outside heat. Further insulation is supplied by the constantly evolving gas which is a poor conductor of heat. The gas being heavier than air, displaces the air until all the interstices within the packing box are permeated by the cold gas, which acts also as a refrigerant of those portions of the foodstuff remote from the solid carbon dioxide. The outside container or shipping case may be of any insulating material; in practice a box of wood, or of cardboard or corrugated paper, which may be thrown away, is used. The cake of solid carbon dioxide placed in the center of the package may also be enclosed in a box or, as appears to be the practice, it may merely be wrapped in paper.

Court Supports Claim to Creation of New Industry

The refrigerant value of solid carbon dioxide is about twice that of water ice, that is, one pound of the former will absorb during evaporation twice as many heat units as will one pound of the latter while melting. But by utilizing the peculiar and well-known properties of solid carbon dioxide by means of the above described arrangement of the package, the patentee has made its refrigerating efficiency approximately 15 to 20 times that of a like weight of water ice. The cost of "dry ice" is about 10 times that of water ice; but its high refrigerating efficiency, its capacity to "melt" without becoming a liquid, and the saving in weight and hence in freight, give transportation packages made up with dry ice advantages which more than offset its greater cost. Packages made up in accordance with the teaching of the patent have been used to an impressive extent. The Dry Ice Corporation began selling solid carbon dioxide commercially in March, 1925. In that year it sold 366,000 pounds. Up to the end of 1927 it had sold nearly 5,000,000 pounds, of which approximately 90 per cent has been used in transportation packages by the ice-cream trade. Prior to the time when plaintiffs began to market solid carbon dioxide, this substance was not manufactured in quantities of any commercial importance. Counsel assert, and we think justly, that plaintiffs have created a new industry.

Slate's original application was filed Jan. 10, 1924. A divisional application, covering one of the specific applications of the invention claimed in the parent application, was filed Sept. 27, 1924. This resulted in the issuance of the patent in suit on Aug. 10, 1926. It is not a patent for a process. Process claims, originally included in the divisional application, were rejected and the rejection was acquiesced in. As issued, the patent is only for a "refrigerating apparatus" consisting of a combination of elements, all old, but combined, it is urged, in a novel arrangement to produce new and useful results in the art of refrigeration. Claims 2, 3, 4 and 6 are relied upon on this appeal. It will suffice to recite claim 3 as illustrative:

> A transportation package consisting of a vented protective casing of insulating material enclosing a quantity of frozen carbon dioxide sufficient to afford refrigeration for the desired period and a quantity of freezable product in freezing proximity to said carbon dioxide and the gas evaporated therefrom and arranged so that said frozen carbon dioxide is less accessible for exterior heat than said freezable products.

Form of Subject Matter Subjected to Question

We are satisfied that Slate discovered how to make up a package consisting of freezable foodstuffs, solid carbon dioxide and their enveloping container, in an arrangement not previously known and producing the new and useful result of making practicable the shipment of such foodstuffs to greater distances than was previously possible. That this discovery would be patentable as a process we cannot seriously doubt. See Yablick v. Protecto Safety Appliance Co., 21 F. (2d) 885, 887 (C. C. A. 3):

> The patentees translated a more or less isolated and hitherto comparatively unimportant fact of chemistry into a useful industry.

It is argued that the process is merely the operation of the peculiar properties of solid carbon dioxide, and that laws of nature may not be patented. Morton v. Infirmary, 5 Blatch. 116 (C. C. S. D. N. Y.); O'Reilly v. Morse, 15 How. (U. S.) 61, 115. Nevertheless, a method of utilizing by specified physical means the operations of a law of nature is patentable, and this is what Slate taught. He did not, however, claim it as a process; he claimed only the "package," product of his process. So the patent, if sustainable, must fall within the statutory phrase "machine, manufacture or composition of matter." Rev. Stat. sec. 4886. The defendant denies that it is either.

"Manufacture" seems the most apposite. The courts have given it a comprehensive definition. In Johnson v. Johnson, 60 F. 618, 620 (C. C. W. D. Pa.), Acheson, J., said:

> The term "manufacture," as used in the patent law, has a very comprehensive sense, embracing whatever is made by the art or industry of man, not being a machine, a composition of matter, or a design. This has frequently been cited with approval, and many courts have sustained patents for constructions which are not ordinarily thought of as a "manufacture." See Riter-Conley Mfg. Co. v. Aiken, 203 F. 699, 708 (C. C. A. 3); Cincinnati Traction Co. v. Pope, 210 F. 443, 446 (C. C. A. 6); International Mausoleum Co. v. Sievert, 213 F. 225, 228 (C. C. A. 6); In re Hadden, 20 F. (2d) 275 (App. D. C.); American Fruit Growers v. Brogdex Co., 35 F. (2d) 106 (C. C. A. 3). In the case last cited the court sustained a product claim consisting of a combination of fresh citrus fruit and a small quantity of borax carried by the rind in an amount sufficient to render the fruit resistant to blue mold decay. Of this the court said (page 108):

> The complete article is not found in nature and is thus an article of manufacture.

In thinking of an article of manufacture one naturally thinks of a permanent contrivance, which does not operate upon a subject that is part of itself. The mind unconsciously resists the incorporation of that subject into the "manufacture" itself. Here we have something, the foodstuffs, which it is the object of the package to refrigerate and deliver, and which at the same time is one of the elements making up the package, the article of manufacture. But we see no reason why a substance may not play this dual role without invalidating the patented combination.

Paraphrasing the language of Mr. Justice McKenna in Leeds & Catlin Co. v. Victor Talking Machine Co., 213 U. S. 325, 335, we may say that if the operative relation of the foodstuffs to the package were merely that of the log to the saw in the mill, wheat to the rollers which grind it, or pins to the machine which produces them; in other words, in no more operative relation than a machine and its product are, the invalidity of the combination would be scarcely questionable. But here the foodstuffs are really a constituent element of the combination package; their arrangement causes them to help insulate the refrigerant from outside heat, thereby retarding its evaporation. They themselves operate upon another element of the combination and are not merely a subject operated upon by the article of manufacture. Nor do we see any reason for refusing to say that the package is a "manufacture" because it is intended to have only a temporary life.

While it lasts, surely it is a combination of physical elements never put together before, and exceedingly useful. True, it perishes in use; when the solid carbon dioxide has evaporated, the combination no longer exists. But it is not fatal to a patent that the patented device is to be destroyed by its use. Instance the case of a patented torpedo, referred to by way of illustration by Mr. Justice Brown in Morgan Envelope Co. v. Albany Co., 152 U. S. 425, 434. We think that the "transportation package" may be the subject of a valid patent.

Statement of Exact Proportions Unnecessary

Validity is also attacked upon the ground that the disclosure is insufficient in that it does not proportion the quantity of solid carbon dioxide to the quantity of product to be refrigerated or specify detailed rules for making up the package by one attempting to practice the patent. It is true that the size of the package, the duration of the intended transportation, the temperature of the outside air and of the product to be refrigerated, the character of insulation supplied by the container, as well as other factors, no doubt have to be considered to make up the package in the most efficient and economical manner possible.

Nevertheless, shippers are evidently able to make up packages sufficiently efficient for practical purposes by utilizing what the patent discloses. Defendant's expert Churchill testified that he shipped to his niece in Oregon a 60-pound package containing three quarts of ice cream and that "the ice cream arrived like a block of cement" and only 22 pounds of the solid carbon dioxide had sublimed in the transit. Apparently he used an unnecessarily large quantity of the carbon dioxide, but because the patent cannot be used in the most efficient manner possible without experience does not prove that the disclosure is insufficient. See Franc-Strohmenger & Cowan v. Arthur Siegman, 27 F. (2d) 785 (C. C. A. 2). It disclosed enough to enable Dr. Churchill to make up a "transportation package" of the character described in the patent and sufficiently efficient to deliver the ice cream in properly refrigerated condition. The patent states the physical arrangement of the elements which make up the claimed combination. While the relative quantities of foodstuffs and dry ice will vary with the size of the package, length of journey, etc., the claimed arrangement of elements remains constant. It is the arrangement which is vital.

Evidence Held to Show Complicity in Infringement

As to the attack upon validity founded upon the assertion of prior knowledge and use, it seems sufficient to say that while the evidence discloses knowledge of the general properties of solid carbon dioxide, it shows clearly that no one before the patentee had thought of using the foodstuffs as insulation for the carbon dioxide nor of utilizing the gas generated upon sublimation as additional insulation and also as a refrigerant of the remote portions of the foodstuffs; that is to say, no one had made up a package with the solid carbon dioxide in the center—no one had utilized the known properties of the refrigerant by the specific arrangement discovered by the patentee.

There can be no reasonable doubt about the defendant's complicity in Marchiony's infringement of the patent, which is all one means by contributory infringement. See Individual Drinking Cup Co. v. Errett, 297 F. 733 (C. C. A. 2). Marchiony was a manufacturer of ice cream. He became a purchaser of plaintiffs' dry ice and thereby obtained a license to use it in making up transportation packages under the patent in suit; but his license did not authorize the combining into the patented arrangement of dry ice purchased from others than plaintiffs. In March, 1927, defendant sold solid carbon dioxide to Marchiony who used it in the same way as he had used that purchased from the Dry Ice Corporation. In view of defendant's advertisements, and its guarantee to Marchiony that its product would be as satisfactory as plaintiffs', there can be no doubt of defendant's intent to have Marchiony use its product to infringe the patent.

But it is urged, in reliance upon Motion Picture Co. v. Universal Film Co., 248 U. S. 502, that Marchiony did not infringe; that plaintiffs' attempt to restrict Marchiony in the use of solid carbon dioxide purchased from defendant is an attempt by indirection to extend their patent monopoly to cover an unpatented substance. There is, however, a plain distinction between that case and this. It is brought out in the opinion of Mr. Justice Clarke in the Motion Picture case itself, at page 514, where he is considering the Button Fastener case which, he says, originated "the construction of the patent law which justifies as valid the restriction of patented machines, by notice, to use with unpatented supplies necessary in the operation of them, but which form no part of them"; and again at page 518, where he declared the restriction invalid "because such a film is obviously not any part of the patent in suit."

To be continued in the issue of Feb. 24.

Journal of the Court of Customs and Patent Appeals

February 21

Present: Presiding Judge William J. Graham, and Associate Judges Oscar E. Bland, Charles S. Hatfield, Finis J. Garrett, and Irvine L. Lenroot.

Patents

No. 2201. Ex parte Irven E. Coffey. Opinion by Graham, Presiding Judge. The decision of the Board of Patent Appeals denying the claims of applicant for a patent on improvements in gear shifting mechanism is affirmed.

No. 2220. Ex parte Nils L. Levin. Opinion by Graham, Presiding Judge. The decision of the Board of Patent Appeals rejecting claims 13 and 17 of appellant's application for a patent on improvements in rotary engines is affirmed.

No. 2225. Ex parte Thomas Kerker. Opinion by Graham, Presiding Judge. The decision of the Board of Patent Appeals denying the aplication of appellant for a patent on improvements in night garments is affirmed.

No. 2217. Ex parte George Langford. Opinion by Bland, Associate Judge. The decision of the Board of Patent Appeals rejecting claims 1 to 5 of appellant's application for a patent on improvement in method of treating worn rail joints is affirmed.

No. 2152. Rosenberg Bros. & Co. v. The Simon Levin & Sons Co. Opinion by Garrett, Associate Judge. The decision of the Commissioner of Patents dismissing the opposition of appellant to the registration by appellee of a trade mark for men's suits and overcoats is affirmed. Bland and Lenroot, JJ., dissent.

Nos. 2194 and 2195. Joseph v. Meigs v. James McIntosh. Opinion by Lenroot, Associate Judge. The decision of the Board of Patent Appeals awarding to appellee priority of invention of an improvement in artificial resin and process of making same is affirmed.

No. 2204. James G. Maclaren v. Joseph J. Stoetzel. Opinion by Lenroot, Associate Judge. The decision of the Commissioner of Patents awarding to appellee priority of invention of automatic air control valves for use in pneumatic tube dispatch systems is affirmed.

No. 2219. Ex parte James Fisher. Opinion by Lenroot, Associate Judge. The decision of the Board of Patent Appeals denying appellant's application for a patent on a roller mill used in manufacturing sugar is reversed.

Nos. 2227 and 2228. International Silver Company v. The American Silver Company and The American Silver Company v. International Silver Company. Opinion by Lenroot, Associate Judge. International Silver Company filed oppositions to two applications of the American Silver Company for registration of trade marks for plated tableware. The Commissioner of Patents sustained one opposition and dismissed the other, and his decision is affirmed.

No. 2232. Walter Baker & Company, Ltd., v. Altamay Chocolate Company. Opinion by Lenroot, Associate Judge. The decision of the Commissioner of Patents dismissing the opposition of appellant to the registration by appellee of a trade mark for preparations of chocolate and cocoa is affirmed.

Nos. 2254 and 2255. Three In One Oil Company v. Burton-Dixie Corporation. Trade mark for mattresses, etc. Dismissed upon motion of appellant.

Nos. 2252 and 2253. Ex parte William E. Sharp. Improvement in lock guts. Order of June 10, 1929, granting leave to file supplemental record, vacated, and leave given parties to file new or additional briefs within time fixed by rules.

No. 2233. Sharp & Dohme v. Parke, Davis & Co. Opinion by Graham, Presiding Judge. The decision of the Commissioner of Patents sustaining the opposition of appellee to the registration by appellant of a trade mark for chemicals, medicines, and pharmaceutical supplies is affirmed.

Customs

No. 3233. The Beaver Products Co., Inc., (F. W. Myers & Co.) v. United States. Opinion by Bland, Associate Judge. The appellant contends that the Canadian sales tax on pulpboard was included in the entered value under duress and that the collector acted prematurely in liquidating the entries. The United State Customs Court overruled the protest of the importer, and their judgment is reversed and the case remanded. Hatfield and Lenroot, JJ., dissent.

No. 3253. The United States v. F. L. Kraemer & Co. Opinion by Bland, Associate Judge. The importers filed a protest claiming drawback on exported merchandise. The Government contended that the agency of the signers of the protest was not established. The United States Customs Court sustained the protest, and their judgment is reversed. Lenroot, J., specially concurs.

Index and Digest Federal Court Decisions

SYLLABI are printed so that they can be cut out, pasted on Standard Library-Index and File Cards, and filed for reference.

Prohibition—Forfeitures—Automobiles—Rights of Innocent Mortgagee—Claim for Balance Due on Mortgage Debt—

Where an intervener, in a proceeding under the national prohibition act ordering that a coupe, seized in the transportation of illicit liquor, be delivered to the marshal for sale, had accepted and bought from the sales agency the payment note and mortgage contract of the vendee who had been procured to purchase the car for the defendant, the intervener knowing the defendant had been convicted of violating the national prohibition act, and because of his liquor activities had refused a credit to him in the purchase of a car, but the intervener knew only the vendee as the purchaser of the car, and did not know that the defendant was concerned in buying it, held: The contract stands as proof of a legitimate transaction and the interest of the intervener was, when the credit was approved, a "good cause" for the return of the car, as it was acquired innocently and without notice the coupe was to be used illegally.—C. I. T. Corp. v. United States. (C. C. A. 10)—IV U. S. Daily, 3591, Feb. 22, 1930.

Patents

Patents—Designs—

Experienced artists and typographers testifying that font of type has highest artistic merit and that pages printed therefrom are strikingly beautiful and pleasing makes it evident that it has a rudimentary aesthetic appeal sufficient to support a design patent despite contrary holding of Patent Office.—Cooper v. Robertson, Comr. Patents. (D. C., D. Md.)—IV U. S. Daily, 3577, Feb. 21, 1930.

Patents—Public Use or Sale—Evidence—

Where evidence of date of first public use or sale of font of type is indefinite and some published statements if standing alone might show a date two years prior to application date, court accepted equivocal statements of interested parties as showing that there was no such two years, use or sale.—Cooper v. Robertson, Comr. Patents. (D. C., D. Md.)—IV U. S. Daily, 3577, Feb. 21, 1930.

Patents—Public Use or Experiment—

If inventor gives or sells his device or design to another without restriction or injunction of secrecy, and it is used, such use is public even though it, and knowledge of it, may be confined to one person; and although concealed by nature of the invention itself; use of a single specimen even in a factory and in presence only of employes may be public; such use is to be distinguished from one which even though open to public view is made in good faith solely to test qualities of invention, that is for experimental purposes only.—Cooper v. Robertson, Comr. Patents. (D. C., D. Md.)—IV U. S. Daily, 3577, Feb. 21, 1930.

Patents—Suits in Equity Under R. S. 4915—Costs—

While R. S. 4915 as amended Mar. 2, 1927, provides that "all the expenses of the proceeding shall be paid by the applicant" he pays costs only and not travelling expenses incurred by the Commissioner of Patents in attending plaintiff's depositions.—Cooper v. Robertson, Comr. Patents. (D. C., D. Md.)—IV U. S. Daily, 3577, Feb. 21, 1930.

Patents—Design for Font of Type Allowed—

Cooper application for Design for Font of Type allowed under R. S. 4915.—Cooper v. Robertson, Comr. Patents. (D. C., D. Md.)—IV U. S. Daily, 3577, Feb. 21, 1930.

Patents—Patentability—Subject Matter for Patents—

Laws of nature may not be patentable, but a method of utilizing by specified physical means the operation of a law of nature is patentable.—American Patents Development Corp. et al. v. Carbice Corp., etc. (C. C. A. 2)—IV U. S. Daily, 3591, Feb. 22, 1930.

Patents—Patentability—Combinations—

In thinking of an article of manufacture one naturally thinks of a permanent contrivance, which does not operate upon a subject that is part of itself; but claim for package in which is carbon dioxide ice surrounded by freezable product which is to be refrigerated and delivered is good, as there is no reason why a substance may not play this dual role without invalidating the combinations.—American Patents Development Corp. et al. v. Carbice Corp., etc. (C. C. A. 2)—IV U. S. Daily, 3591, Feb. 22, 1930.

Patents—Patentability—Subject Matter for Patents—

It is not fatal to a patent that the patented device is to be destroyed by its use; e. g., solid carbon dioxide as refrigerant.—American Patents Development Corp. et al. v. Carbice Corp., etc. (C. C. A. 2)—IV U. S. Daily, 3591, Feb. 22, 1930.

Patents—Defenses—

Because the patent cannot be used in the most efficient manner possible without experience does not prove that the disclosure is insufficient when the art knows how to operate for practical purposes.—American Patents Development Corp. et al. v. Carbice Corp., etc. (C. C. A. 2)—IV U. S. Daily, 3591, Feb. 22, 1930.

Patents—Infringement—Contributory—

Where plaintiff owner of patent for package using carbon dioxide as refrigerant, sold carbon dioxide to third party and licensed him to use it in patented combination, sale of carbon dioxide to same person by defendant with guarantee it would be as satisfactory as plaintiff's showed defendant's intent to have its product used to infringe the patent.—American Patents Development Corp. et al. v. Carbice Corp., etc. (C. C. A. 2)—IV U. S. Daily, 3591, Feb. 22, 1930.

Trade Marks

Trade Marks—Registration—Effect of Registration—

As plaintiff's mark as registered consists of a descriptive term it is quite well settled plaintiff cannot by such means obtain a right to the exclusive use or of a monopoly of the tefm because of the fact it is registered as a trade mark.—Hygrade Food Products Corp. v. H. D. Lee Mercantile Co. et al. (D. C., D. Kans.)—IV U. S. Daily, 3591, Feb. 22, 1930.

Unfair Competiton

Unfair Competition—Descriptive Terms—

Although plaintiff has built up a business and good name in food products marked "Hygrade Food Products," it is not unfair competition for defendant to employ signs "High Grade Food Products" or "High Grade Food Store" when there is no limitation of plaintiff's trade mark or dress of goods.—Hygrade Food Products Corp. v. H. D. Lee Mercantile Co. et al. (D. C., D. Kans.)—IV U. S. Daily, 3591, Feb. 22, 1930.

Company Financing Sale Allowed Return Of Confiscated Car

Lack of Notice as to Actual Buyer Entitles Holder of Conditional Sales Contract To Recovery

Denver, Colo.—A finance corporation, which purchased the conditional sales contract and note of a person who was secured by a third person, previously convicted for violating the prohibition act, to purchase a car for him, the corporation having refused credit to such third person and not having knowledge of the fact that he was concerned in the purchase, has been held by the Circuit Court of Appeals for the Tenth Circuit to have "good cause" under the provisions of the national prohibition act to have the car, seized for transporting liquor, returned to it, since its interest was acquired innocently and without notice that the car was to be used illegally.

The opinion sets out that the sales agency knew of the third person's prior conviction for liquor violations as well as the nature of his business. A Mr. Smith was procured to purchase the car upon his own paper and responsibility, which paper the finance corporation subsequently approved and purchased. It was only after the seizure that it discovered that the real purchaser was the illicit liquor dealer. Under these facts, the court held the finance corporation, as intervener, was entitled to the return of the car, since its interest therein was in excess of the value thereof.

C. I. T. CORPORATION
v.
UNITED STATES.

Circuit Court of Appeals, Tenth Circuit.

No. 115.

Appeal from the District Court for the District of Kansas.

MR. BRYAN ALLEN (MR. ALLAN R. BROWNE with him on the brief) for appellant. ALTON H. SKINNER, Assistant United States Attorney (AL F. WILLIAMS, United States Attorney, and L. E. WYMAN, Assistant United States Attorney with him on the brief) for appellee.

Before LEWIS, COTTERAL and PHILLIPS, Circuit Judges.

Opinion of the Court

Jan. 29, 1930

COTTERAL, Circuit Judge.—This appeal is brought by the C. I. T. Corporation to reverse an order denying its claim to a Reo coupe, upon intervention in a criminal prosecution commenced by information, on Oct. 2, 1928, against Calvin H. Humberd, where he was charged with the commission of the two offenses of possession of intoxicating liquor and transporting it in that coupe, on Sept. 27, 1928, pleaded guilty, was fined on the first count and sentenced to jail on the other count with terms of probation, and at the same time it was ordered that the coupe be delivered to the marshal for advertisement and sale, with leave to all persons to appear and assert their claims to it.

The appellant intervened in the proceeding, and sought, by virtue of a written contract executed and recorded on Apr. 21, 1928, between the Kritzler Motor Company and Ernest L. Smith, assigned concurrently by endorsement thereon to the appellant, to recover possession of the coupe, or enforce a mortgage lien upon it for $1,035.35, with attorney's fees and interest, as the balance due upon the contract.

Breach of Terms

The contract purports to be for the conditional sale of the coupe by the Kritzler Motor Company, of Kansas City, Kans., to Ernest L. Smith, to be kept at that city, and to be paid for in 18 monthly installments, and it provides that if they should not be paid when due, or the coupe should be used for bartering, storage or transportation of intoxicating liquors, the whole debt should mature and the seller might take possession of the coupe, crediting the payments as liquidated damages for the use of it, or sell it and credit the proceeds on the debt.

The intervener alleged that there was a breach of the mortgage terms if intoxicating liquors had been transported in the coupe, that $1,035.35 stood unpaid on the debt, that the coupe was not

[*Continued on Page 8, Column 4.*]

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Duplicate of Letter From Mr. Lincoln Given to President

Mr. Ackerman Presents Copy of Communication Sent to Regent Captains Of San Marino Republic

To President Hoover was presented Feb. 21 by Representative Ackerman (Rep.), of Plainfield, N. J., a photostat copy of a letter said to have been written by Abraham Lincoln and dated May 7, 1861, to the regent captains of the 800-year-old republic of San Marino, Italy, in which he expressed his views on government founded on republican principles.

The letter was in reply to one notifying Mr. Lincoln that citizenship in San Marino had been conferred upon him. The letter, Mr. Ackerman said, came to his notice while in San Marino last Summer while in search of rare philatelic items for his stamp collection.

Text of Lincoln Letter

The letter follows in full text:

To the Regent Captain of the Republic of San Marino.

Great and Good Friends: I have received and read with great sensibility the letter which as regent captains of the republic of San Marino you addressed to me on Mar. 29 last. I thank the council of San Marino for the honor of citizenship they have conferred upon me.

Although your dominion is small your State is nevertheless one of the most honored in all history. It has by its experience demonstrated the truth, so full of encouragement to the friends of humanity, that government founded on republican principles is capable of being so administered as to be secure and enduring.

Faith Is Expressed

You have kindly adverted to the trial through which this Republic is now passing. It is one of deep import. It involves the question whether a representative republic, extended and aggrandized so much as to be safe against foreign enemies, can save itself from the dangers of domestic faction. I have faith in a good result.

Wishing that your interesting state may endure and flourish forever and that you may live long and enjoy the confidence and secure the gratitude of your fellow citizens, I pray God to have you in his holy keeping. Your good friend,

ABRAHAM LINCOLN.

Washington, May 7, 1861.

By the President, William H. Seward, Secretary of State.

Changes in Status of Bills in Congress

Title 14—Coast Guard

H. R. 1018. To provide for establishment of a Coast Guard station at or near Grand Island, Mich. Passed House Feb. 17. Passed Senate Feb. 20.

Title 23—Highways

H. R. 9325. To authorize the United States Veterans' Bureau to pave the road running north and south immediately east of and adjacent to Hospital No. 90, at Muskogee, Okla., and to authorize the use of $4,950 of funds appropriated for hospital purposes. Reported to House Feb. 20.

Title 36—Patriotic Societies and Observances

H. R. 8527. To amend the act entitled "an act to enable the mothers and widows of the deceased soldiers, sailors, and marines of the American forces now interred in the cemeteries of Europe to make a pilgrimage to these cemeteries," approved Mar. 2, 1929. Passed House Feb. 17. Reported to Senate Feb. 21.

Bills and Resolutions Introduced in Congress

Title 10—Army

H. R. 10118. Mr. Andrew, Mass. To authorize the Secretary of War to lend War Department equipment for use at the Twelfth National Convention of the American Legion to be held at Boston, Mass., during October, 1930; Military Affairs.

Title 15—Commerce and Trade

H. R. 10122. Mr. Jones, Tex. To permit the regulations of monopolies, trusts, chain stores, combinations and holding companies; Judiciary.

Title 16—Conservation

H. R. 10125. Mr. Schafer, Wis. To provide against monopolistic control of our natural resources; Interstate and Foreign Commerce.

H. R. 10132. Mr. Hoag, Ind. To provide for the preservation, completion, maintenance, operation and use of the United States Muscle Shoals, project for war, navigation, fertilizer manufacture, electric power production, flood and farm relief; Military Affairs.

H. J. Res. 254. Mr. Colton, Utah. Authorizing the making of surveys, plans, and estimates for the irrigation of certain lands and for the study of power possibilities in the States of Arizona, Colorado, California, New Mexico, Nevada, Utah and Wyoming, under the terms of the Colorado River compact; Irrigation and Reclamation.

Title 19—Customs Duties

H. R. 10127. Mr. White, Me. To amend section 212 and 231 of the revenue act of 1928; Ways and Means.

Title 22 — Foreign Relations and Intercourse

H. J. Res. 253. Mr. Korell, Oreg. To provide for the expenses of a delegation of the United States to the sixth meeting of the congresses of military medicine and pharmacy to be held at Budapest in 1931; Foreign Affairs.

Title 24—Hospitals, Asylums, and Cemeteries

H. R. 10121. Mr. Johnson, Wash. To authorize the erection of an addition to the Veterans' Bureau Hospital at American Lake, Wash.; World War Veterans' Legislation.

H. R. 10130. Mr. Wolverton, W. Va. To authorize the erection of the Veterans' Bureau Hospital in the State of West Virginia, and to authorize the appropriation therefor; World War Veterans' Legislation.

H. R. 10133. Mr. Evans, Mont. To authorize the erection of an addition to the Veterans' Bureau Hospital No. 72, Fort Madison, Mont., and to authorize the appropriation therefor; World War Veterans.

Title 27—Intoxicating Liquors

H. R. 10120. Mr. Dyer, Mo. To amend the national prohibition act; Judiciary.

Title 29—Labor

S. 3653. Mr. Capper. To amend an act entitled "an act to provide compensation for disability or death resulting from injury to employes in certain employements in the District of Columbia," approved May 17, 1928; District of Columbia.

Title 34—Navy

H. R. 10126. Mr. Vinson, Ga. To provide for promotion in the Navy to the grade of read admiral; Naval Affairs.

Title 37—Pay and Allowances (Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service)

H. R. 10131. Mr. Wurzbach, Tex. To equalize the pay of certain classes of officers of the Regular Army; Military Affairs.

Title 39—Postal Service

H. R. 10123. Mr. McMillan, S. C. To increase the compensation of carriers in the village delivery service; Post Offices and Post Roads.

Title 40 — Public Buildings, Property, and Works

H. R. 10119. Mr. Brand, Ohio. To sell the present post office site at Urbana, Ohio; Public Buildings and Grounds.

Title 43—Public Lands

H. R. 10134. Mr. James, Mich. (by request of the War Department). To authorize the exchange of land at Randolph Field, Tex., in order to straighten the boundary line of said reservation; Military Affairs.

Title 46—Shipping

H. R. 10124. Mr. Shaffer, Va. To establish a fish matching and fish cultural station in the State of Virginia; Merchant Marine.

H. R. 10128. Mr. White, Me. To prevent discriminations against American ships and ports; Ways and Means.

H. R. 10129. Mr. White, Me. To amend section 14 of the shipping act of 1916 as amended by section 20 of the Merchant Marine act of 1920; Merchant Marine.

Topical Survey of Federal Government

Officers of Ships Are Examined To Insure Fitness for Positions

Materials for Boilers and Equipment of Vessels Required By Federal Service to Be in Good Condition

Topic II—Transportation: Transportation Equipment

In this series of articles presenting a topical survey of the Government are shown the practical contacts between divisions and Bureaus irrespective of their place in the administrative organizations. The present series deals with Transportation.

By Dickerson N. Hoover,

Supervising Inspector General, Steamboat Inspection Service

THE supervising inspectors in charge of the 11 supervising inspection districts for the Steamboat Inspection Service are selected for their knowledge and practical experience in the uses of steam for navigation and are responsible for the general condition and efficiency of the Service throughout their respective districts.

It is their duty to watch over all parts of the territory assigned to them; instruct local boards of inspectors in the proper performance of their duties; examine, whenever they think it expedient, into the condition of any licensed vessel for the purpose of ascertaining whether the laws have been observed both by the inspectors and the masters and owners; and report to the Secretary of Commerce any failure of a board to do its duty. They are also obliged to visit any district in which there is at any time no board of inspectors and within which vessels are owned and employed, and to perform in such district all the duties imposed on local boards.

* * *

They hear and decide all cases in which any person, master, or owner deems himself wronged by the decision of the local inspectors, and investigate and decide all cases, when requested to do so, where disagreements have arisen between the local inspectors.

At the end of each year they submit reports to the Supervising Inspector General covering the general business transacted during the year, together with all violations of laws and the action taken in relation thereto.

* * *

ON THE third Wednesday of January in each year, and at such other times as the Secretary of Commerce may prescribe, the supervising inspectors and the Supervising Inspector General assemble at Washington as a Board of Supervising Inspectors for the purpose of joint consultation, the assignment of territory, the approval of instruments and equipment required to be used on steam vessels for the better security of life, and the formulation of regulations necessary to carry out in the most effective manner the provisions of the steamboat inspection laws, which regulations, when approved by the Secretary of Commerce, have the force of law.

The Secretary, however, is authorized to call in session at any time, after reasonable public notice, a meeting of an executivve committee, composed of the Supervising Inspector General and two supervising inspectors, which committee, with the approval of the Secretary, may change or repeal any of the rules or regulations made by the Board of Supervising Inspectors, such changes to have the force of law and continue in effect until 30 days after the adjournment of the next meeting of the Board of Supervising Inspectors. The executive committee may also approve instruments, machines, and equipment required to be used on steam vessels for the better security of life.

* * *

Each of the local districts into which the various supervising inspection districts are divided is presided over by a board of local inspectors, consisting of a local inspector of hulls and a local inspector of boilers. It is the duty of this board to inspect, at least once a year, each steam vessel within its district, and to certificate or disapprove the same, and to examine all steamers arriving and departing to and from the ports in its district, and order the master or owner to make necessary repairs or correct unlawful conditions.

It is also incumbent on the board to examine all persons applying for officer's licenses to license for five years each of them who can be safely intrusted with the duties and responsibilities of the station for which application is made, to investigate all acts of incompetency or misconduct committed by licensed officers while acting under the authority of their licenses, and when necessary to suspend or revoke the licenses of such officers.

* * *

IT IS required to keep a record of all licenses granted to masters, mates, pilots, and engineers, as well as its decisions in cases where licenses have been refused, suspended, or revoked, and to transmit to the supervising inspector of its district all testimony received by it in such proceedings.

It is also required to keep a record of certificates issued to vessels and of every steamer boarded during the year, which information, together with an account of all other official acts, is communicated to the supervising inspector in the form of a report at such times as may be directed.

* * *

Assistant inspectors perform such duties of actual inspection as may be assigned to them under the direction, supervision, and control of the local inspectors, and may be detailed by the Supervising Inspector General, under the direction of the Secretary of Commerce, to inspect, at the mills where the same are manufactured, iron and steel plates to be used in the construction of marine boilers, which plates, when properly stamped, are accepted by the local inspectors as being in full compliance with the law.

Whenever any local inspector or supervising inspector ascertains that any vessel subject to the provisions of the steamboat inspection laws is being operated or navigated without complying with the provisions of such laws, the certificate of inspection issued to such vessel is immediately revoked, and no new certificate is issued until the law has been fully complied with.

* * *

ANY vessel operating or navigating, or attempting to operate or navigate, after the revocation of her certificate of inspection and before the issuance of a new certificate, is subject to a fine, and may, by proper order or action of any district court of the United States having jurisdiction, be seized summarily by way of libel and held without privilege of release by bail or bond until a proper certificate of inspection shall have been issued to said vessel.

Any master or owner of any vessel whose certificate shall have been revoked may, however, appeal to the Secretary of Commerce for a reexamination of the case, and upon such appeal the Secretary has power to revise or set aside the action of the local or supervising inspector and to direct the issuance of a certificate of inspection. The judicial process brought against the vessel shall thereupon be of no further force or effect, and the vessel shall be released.

* * *

In addition to the annual report of the Supervising Inspector General, the Service issues and distributes frequent editions of pilot rules for each of the three divisions into which the waters of the United States are divided, laws governing the Service, and general rules and regulations prescribed by the Board of Supervising Inspectors.

Supervising Inspectors General, with dates of service, have been as follows: Joseph Belknap, from June 11, 1871, to June 20, 1872; Joseph Nimmo Jr., from June 20, 1872, to Mar. 4, 1873; David D. Smith, from Mar. 4, 1873, to Sept. 1, 1874; William Burnett, from Sept. 1, 1874, to Nov. 22, 1876; James A. Dumont, from Nov. 22, 1876, to Mar. 31, 1903; George Uhler, from Apr. 1, 1903, to Dec. 31, 1925; Dickerson N. Hoover, from Jan. 16, 1926.

The twelfth article under the subtopic "Transportation Expenses" will be published in the issue of Feb. 24 and is contributed by Rear Admiral William A. Moffett, Chief of the Bureau of Aeronautics, Department of the Navy.

Acts of Congress Given Approval of President

President Hoover, it was announced orally at the White House Feb. 21, has approved the following joint resolutions and bills recently passed by Congress, as follows:

Feb. 18

H. R. 2824. An act to amend section 5 of the act entitled "An act to establish a national military park at the battle field of Fort Donelson, Tennessee," approved Mar. 26, 1928.

Feb. 19

H. J. Res. 207. Joint resolution authorizing an appropriation to defray the expense of participation by the Government of the United States in the inter-American congress of rectors, deans, and educators in general to be held at Habana, Cuba, on Feb. 20, 1930.

H. R. 7635. An act to extend the times for commencing and completing the construction of a bridge across the Potomac River at or near Dahlgren, Va.

H. R. 7497. An act to amend the act entitled "An act granting the consent of Congress to the County of Armstrong, a county of the State of Pennsylvania, to construct, maintain and operate a bridge across the Allegheny River at Kittanning, in the County of Armstrong, in the State of Pennsylvania, approved Feb. 16, 1928, and to extend the times for commencing and completing the construction of the bridge authorized thereby.

H. R. 7637. An act to extend the time for constructing a bridge across the Santa Rosa Sound, Florida.

H. J. Res. 40. Joint resolution authorizing and requesting the President to extend invitations to foreign governments to be represented by delegates at the international congress for the blind to be held in the City of New York in 1931.

Feb. 20

H. J. Res. 252. Joint resolution making an additional appropriation for maintenance of the Senate Office Building.

Company Financing Sale Allowed Return Of Confiscated Car

Lack of Notice as to Actual Buyer Entitles Holder of Conditional Sales Contract To Recovery

[*Continued from Page 7.*]

worth the balance due, and prayed for the possession of it or the balance of the mortgage debt, with attorney's fees and interest. An answer was filed, admitting the execution and recording of the contract, and alleging that the sale of the coupe was made to Humberd, alias Smith, with knowledge on intervener's part that he had been convicted of violating the national prohibition act, that he was a questionable character who would use the coupe for transporting liquors, and that the intervener had refused a loan on the car because of the fact and was not an innocent claimant. The intervener replied with a general denial.

The controversy was heard on Dec. 5, 1928, upon the evidence of the parties, and on Feb. 5, 1929, relief was denied to the intervener, without findings of fact. The trial judge, however, filed a memorandum, expressive of his views upon the facts and the law applicable, and condemned the sale transaction.

Contract Gives Mortgage

The national prohibition act, section 40, title 27, U. S. Code (41 Stat. 315, section 26) provides that if a vehicle is seized when used to transport intoxicating liquors, the court, "unless good cause to the contrary" is shown by the owner, shall order a sale of the vehicle and pay liens established as bona fide and created without the lienor having any notice it was being or was to be used for the illegal transportation of liquor. In United States v. One Ford Coupe, 272 U. S. 321, seizures under the revenue and prohibition acts were distinguished, and the court ruled (page 325) that under the latter "the interests of those who are innocent are not forfeited," and (page 332) "the forfeiture of the vehicle extends only to the interests of those who share in his (the offender's) guilt by having notice that it was to be used for the illegal purpose."

The contract partakes of the nature both of a conditional sale contract and a chattel mortgage. The Supreme Court of Kansas has held that the difference is theoretical but not practical, and that a conditional sale contract in that State, since the enactment of the recording act, effects a security, on the same basis as a chattel mortgage. Christie v. Scott, 77 Kans. 257, 94 Pac. 214. The intervener refers to the contract as a mortgage and claims a balance due on a mortgage debt, which is evidenced by a note in form an unconditional obligation. We likewise classify the contract. The result is the intervention is equitable in character, being designed to enforce a lien, and this answers the objection that the evidence is not open to review, in being approved as in equity cases and not settled in a bill of exceptions.

No Notice Shown

The evidence shows the Kritzler Motor Company, of which S. H. Kritzler was the proprietor, was engaged in selling cars on deferred payments, and the intervener bought the paper offered to it if it approved the credit, and otherwise the sale failed. In this case, the intervener accepted and bought from Kritzler the proposed note and contract of Ernest L. Smith. Intervener knew Humberd had been convicted of violating the national prohibition act, and because of his "liquor activities" refused a credit to him in the purchase of a car, probably the Reo coupe in controversy, but intervener knew only Smith as the purchaser of the coupe, and did not know Humberd had been concerned in buying it from Kritzler, until informed by Humberd after the seizure. The contract stands as proof of a legitimate and valid transaction. The interest of intervener was, therefore, when the credit was approved, a "good cause" for the return of the car, as it was acquired innocently and without notice the coupe was to be used illegally.

We are not in accord in holding the lien was then "created," although it was only tentative in Kritzler's hands. But if it was not, it was when Kritzler took the contract for the sale. Missouri Investment Corporation v. United States, 32 Fed. (2) 511.

Evidence Favors Intervener

Kritzler also knew of Humberd's rejected credit and the cause of it, and necessarily knew the coupe was sold to both Humberd and Smith, from their joint application to buy it. Kritzler's salesman, without knowledge of Humberd's prior conviction, sold the coupe to both, on Smith's paper and responsibility, and likely because of Humberd's financial condition, possibly his "booze reputation." The salesman knew Humberd procured Smith to join in the purchase to obtain the credit and that Humberd was the real purchaser, for the price of $1,835, turning in another car at $585, and paying a balance of $26. But there is a dearth of evidence to show that either Kritzler or his agent had knowledge or intimation from any source or were put on notice that the coupe would be used for transporting liquor.

We conclude, without more definite proof, that whether the lien interest in question arose when Kritzler made the sale, or when the intervener acquired the paper, that interest was "good cause" for the return of the coupe, and it was "created" without guilty notice. Giving due weight to the views of the trial judge, we conclude the evidence requires a disposition of the case in intervener's favor.

The intervener is therefore entitled to be awarded the possession of the coupe, as its value is shown to be less than intervener's claim, or if the coupe has been sold, intervener should recover the net proceeds of sale, but if they exceed intervener's claim, the excess should be paid into the Treasury of the United States, as provided by the national prohibition act. The order of the district court is reversed and this proceeding is remanded to that court, with direction to enter an order in accordance with this opinion.

PHILLIPS, Circuit Judge, concurs in the result.

New Books Received by Library of Congress

List supplied daily by the Library of Congress. Fiction, books in foreign languages, offical documents and children's books are excluded. Library of Congress card number is at end of last line.

Cole, Lawrence Edwin. . . . The localization of tactual space; a study of average and constant errors under different types of localization; from the Psychological laboratories of Columbia university. (Genetic psychology monographs. vol. v, no. 5.) (Thesis (Ph. D.)—Columbia university, 1929.) 339-450 p. Worcester, Mass., 1929. 30-3173

Danenberg, Elsie Nicholas. The romance of Norwalk. (Sectional history series.) 514 p. N. Y., The States history co., 1929. 30-2910

Eddy, Sarah J., comp. Alexander and some other cats, compiled and arranged by . . . 207 p., illus. Boston, Mass., Marshall Jones co., 1929. 30-3179

Frear, Mrs. Mary Emma (Dillingham). Our familiar island trees by . . .; sponsored (!) by the Outdoor circle of Honolulu. 161 p., illus. Boston, R. G. Badger, 1929. 30-3176

Fuller, John Frederick Charles. The generalship of Ulysses S. Grant. 446 p., illus. London, J. Murray, 1929. 30-2918

Holbrook, Franklin Fisk. St. Paul and Ramsey County in the war of 1917-1918, edited by . . . 588 p., illus. St. Paul, Minn., Ramsey County war records commission, 1929. 30-3089

Hollis, Christopher. . . . The monstrous regiment. 235 p. London, Sheed & Ward, 1929. 30-3086

Jones, Samuel Isaac. Mathematical wrinkles; a handbook for teachers and private learners, by . . . 1930 ed., rev. and enl. 361 p. Nashville, Tenn., S. I. Jones, 1929. 30-2920

Kapp, Reginald Otto, ed. Electrical transmission and distribution; a complete work by practical specialists describing modern practice in the transmission and distribution of electricity supply. (Elec-transmission & distribution series.) 8 v., illus. N. Y., Sir I. Pitman & son, 1929. 30-3189

Kerwin, Mrs. Madeleine. How to bid contract bridge; a short cut from auction to contract. 2d ed., first printing. 58 p. N. Y., Kerwin co., 1929. 30-2898

Kidner, Thomas Bessell. . . . Room, ward and porch design and equipment for tuberculosis hospitals and sanatoria. (National tuberculosis association. Technical series, no. 10.) 29 p., illus. N. Y., National tuberculosis association, 1929. 30-3162

Kilpin, Ralph Pilkington. The romance of a colonial parliament, being a narrative of the Parliament and Councils of the Cape of Good Hope from the founding of the colony by Van Riebeeck in 1652 to the Union of South Africa in 1910; to which is added a list of governors from 1652 to 1910 and a complete list of members from 1825 to 1910. 175 p. N. Y., Longmans, Green and co., 1930. 30-2895

Kuhlmann, John Henry Helwig. Design of electrical apparatus, by John H. Kuhlmann . . . 455 p., illus. N. Y., J. Wiley, 1930. 30-3183

La Motte chemical products company, Baltimore. La Motte blood chemistry handbook; containing up-to-date information on simplified methods and apparatus for blood chemistry as required in the routine practice of medicine. 77 p., illus. Baltimore, Md., Research laboratories of the La Motte chemical products company, Division of blood chemistry apparatus, 1929. 30-3164

Laughlin, Curtis Stuart. Continental breakfast; a few pages from the European journal of Curtis Stuart Laughlin, with additions. 41 p. Portland, Me., 1929. 30-3080

Maloy, Bernard S. Legal anatomy and surgery; a complete and scientific presentation of anatomy and surgery designed to meet the peculiar needs of the legal profession, by . . . With introductions from legal and medical standpoints by John H. Wigmore . . . and Dr. W. A. Newman Dorland . . . 804 p., illus. Chicago, Callaghan and co., 1930. 30-2921

Moore, George. . . . Conversations with George Moore. 179 p. London, E. Benn, 1929. 30-3219

Nissen, Henry Wieghorst. . . . The effects of gonadectomy, vasotomy, and injections of placental and orchic extracts on the sex behavior of the white rat; from the Animal laboratory of the Department of psychology, Columbia university. (Genetic psychology monographs, vol. v, no. 6. Thesis (Ph. D.)—Columbia university, 1929.) p. 455-556, illus. Worcester, Mass., 1929. 30-2927

Nolde, Otto Fred. The department of Christian education in the theological seminary; a type study of the Lutheran theological seminary at Philadelphia, Pennsylvania. (Thesis (Ph. D.)—University of Pennsylvania, 1929.) 167 p. Phila., 1929. 30-2908

Nystrom, Paul Henry. Economics of retailing. 3d ed., rev. and enl. (Merchandising and distribution series.) 2 v., illus. N. Y., The Ronald press co., 1930. 30-2891

Padwick, Constance E. Temple Gairdner of Cairo. 330 p., plates. London, Society for promoting Christian knowledge, 1929. 30-2906

Parkes, Oscar. The world's warships. 185 p., plates. London, S. Low, Marston & co., 1929. 30-3169

Peay, Austin. Austin Peay, governor of Tennessee, 1923-1925, 1925-1927, 1927-1929; a collection of state papers and public addresses, with a biography by T. H. Alexander. 451 p. Kingsport, Tenn., Southern publishers, inc., 1929. 30-2911

Randolph, Cary Jacquelin. Twilights of yesterday, the epic story of old Alexandria, by . . . illustrated by Olga Baridon. 49 p., illus. Alexandria, Va., The Alexandria print shop, 1929. 30-2915

Rigdon, Winfield Taylor. Mystic chain of discovery; the era of great awakening, from the fifteenth to the seventeenth century, the leading characters in the drama, the final settlement in the Northwest. 456 p., illus. Salem, Or., Elliott printing house, 1929. 30-2913

Rowe, William Hutchinson. Shipbuilding days in Casco Bay, 1727-1890; being footnotes to the maritime history of Maine. 222 p. Yarmouth, Me., 1929. 30-3168

Simpson, Herbert Downs. The tax situation in Illinois. (Studies in public finance. Research monograph no. 1, R. T. Ely, editor.) 104 p., illus. Chicago, Ill., The Institute for research in land economics and public utilities, Northwestern university, 1929. 30-2893

Smith, Hilda Worthington. Women workers at the Bryn Mawr summer school, by . . . 346 p. New York city. Affiliated summer schools for women workers in industry and American association for adult education, 1929. 30-3174

Society of American bacteriologists. . . . Bergey's manual of determinative bacteriology; a key for the identification of organisms of the class Schizomycetes, by David H. Bergey, assisted by a committee of the Society of American bacteriologists: Francis C. Harrison, Robert S. Breed, Bernard W. Hammer, Frank M. Huntoon; with an index by Robert S. Breed. 589 p. Baltimore, The Williams & Wilkins co., 1930. 30-3178

Stevenson, Frederick James. A traveller of the sixties, being extracts from the diaries kept by . . . of his journeyings and explorations in Brazil, Peru, Argentina, Patagonia, Chile and Bolivia during the years 1867-1869, selected, arranged and edited with a memoir by Douglas Timins. 308 p. London, Constable & co., 1929. 30-2919

Stevenson, Robert Louis. The manuscripts of Robert Louis Stevenson's Records of a family of engineers; the unfinished chapters, edited with an introduction by J. Christian Bay. 92 p. Chicago, W. M. Hill, 1929. 30-3185

Sturtevant, Walter W. How to make blue prints, by . . . 60 p., illus. Milwaukee, Wis., N. Y., The Bruce publishing co., 1929. 30-3184

Taylor, Mack. Alfred E. Smith, a psychological analysis. 87 p. Fort Worth, Tex., Independent publishing house, 1928. 30-2916

Thompson, Phillips B. Simplifying the golf stroke, by . . ., based on the theory of Ernest Jones. ("Revised edition.") 15 p. N. Y., L. Gomme, 1929. 30-2899

Townsend, Clarence Ellsworth. Introductory mechanical drawing, by . . . and Stephen F. Cleary. 302 p., illus. N. Y., J. Wiley, 1930. 30-3181

Toynbee, Margaret Ruth. S. Louis of Toulouse and the process of canonisation in the fourteenth century. (Publications of the University of Manchester. Historical series. no. 55.) 266 p. Manchester, University press, 1929. 30-2907

Tuckerman, Frederick. Amherst academy; a New England school of the past, 1814-1861. 272 p. Amherst, Printed for the trustees, 1929. 30-3172

Wheat, Gladys M. Vistas, university of Missouri; thirty linoleum cuts by Gladys Wheat. 31 leaves. Columbia, Mo., Printed and bound by the author, 1929. 30-3171

Willson, Dixie, comp. . . . Games for grown ups, hilariously compiled by . . . and Harriet Eager Davis for the amusement and entertainment of Delineator readers and their friends; illustrated by Sue Williams. 31 p., illus. N. Y., Delineator service, 1929. 30-2896

Wilson, Samuel Alexander Kinnier. Modern problems in neurology. 364 p., illus. N. Y., W. Wood & co., 1929. 30-3166

Alexander, Peter. Shakespeare's Henry vi and Richard iii, by . . . with an introduction by Alfred W. Pollard. (Shakespeare problems, by A. W. Pollard & J. D. Wilson. no. iii.) 229 p. Cambridge, Eng., The University press, 1929. 30-3065

Benjamin, William Augustus. The song of the opal sea, and other things, by . . ., with an introduction by William Frederic Bade, illustrated from paintings by Mr. John Ferry and Mr. Hugo Possner. 55 Los Angeles, Calif., Musurgia books, 1929. 30-3061

Bible. N. T. Gospels. Shawnee. The four Gospels of Our Lord Jesus Christ, in Shawnee Indian language by Thos. W. Alford. 200 p. Xenia, O. W. A. Galloway, 1929. 30-3223

Block, Etta, tr. One-act plays from the Yiddish. Second series. By Isaac Loeb Peretz, Perez Hirschbein, Abraham Raisen, F. Bimko; authorized translation by . . . 123 p. N. Y., Bloch publishing company, 1929. 30-3312

Buhlig, Rose. Junior English. 3 v., illus. Boston, D. C. Heath and co., 1930. 30-3313

Burns, Lee. Life in old Vincennes. (Indiana historical society. Publications, v. 8, no. 9.) 437-460 p. Indianapolis, Printed for the Society, 1929. 30-3079

Contractor's Surety Held To Be Liable for Notes

[*Continued from Page 6.*]

absent—and its absence was the fulcrum upon which the reasoning turned—in the cases cited. Neither of the bonds sued upon in those cases was made for the benefit of the respective claimant. In each instance there was a fruitless effort to establish a foothold in section 28 of the practice act (Comp. Stat. page 4059). The bond now the subject of suit was in express terms "for the benefit of any materialman or laborer having a just claim" and the plaintiff is entitled to sue thereon.

There is no suggestion in the proofs that the allowance of interest will reduce the ultimate liability of the defendant under its bond to the point where other legitimate claims will be affected. On the other hand, there is evidence that the last payment under the main contract, amounting to $12,788.14, was paid the contractor when it became due and was by him turned over to defendant for disbursement.

The case of Fidelity &c. Co. v. Wilkes-Barre Co., 98 N. J. L. 507, cited by defendant on the proposition that interest is no part of a debt unless so stipulated in the contract does not appear to be of that tenor. That action was brought on certain interest coupons detached from their several bonds, and recovery was sought for the amount of the coupons with interest thereon from the respective dates of maturity. There appears to have been no pertinent provision in the contract but the court held that the interest charge was sound for the reason taht the illegal detention of a legitimate claim or indebtedness properly carried interest as damages for the detention.

The Continental Casualty Company was, by the terms of its bond, obligated to the prompt payment of the claim on which its principal defaulted. The amount was precise at the figure of $5,039.83. The defendant was duly notified in accordance with the statute and could have discharged its obligation at that the illegal detention of a legitimate days following the notice. Warren Brothers Co. v. Hartford &c. Co., supra. At the expiration of that period, namely, Oct. 16, 1926, the liability became fixed and defendant was suable thereon. Defendant's position thereafter was that of unlawfully detaining payment of a legitimate and liquidated claim. It was chargeable for interest from that time forward. We find no error in the matter covered by defendant's appeal and to the extent of that appeal there will be an affirmance.

The judgment below will, however, for the reasons stated, be reversed on plaintiff's appeal and a venire de novo awarded.

Government Books and Publications

Documents described under this heading are obtainable at prices stated, exclusive of postage, from the Inquiry Division of The United States Daily. The Library of Congress card numbers are given. In ordering, full title, and not the card numbers, should be given.

Report of An Economic Survey of Certain Federal and Private Irrigation Projects, 1929.—Bureau of Reclamation, United States Department of the Interior. Free at Bureau. 30-26210

Technical News Bulletin of the Bureau of Standards.—No. 154, February, 1930. Issued monthly by the Bureau of Standards, United States Department of Commerce. Subscription price, 25 cents per year. (25-26527)

List of Publications Relating to Transportation—Railroad and Shipping Problems, Postal Service, Telegraphs and Telephones.—Price List 25, 18th Edition. Free at Superintendent of Documents. (26-26255)

Journal of Agricultural Research.—Vol 40, No. 3, Feb. 1, 1930. Published on the first and fifteenth of each month by the United States Department of Agriculture. Subscription price, $4.00 per year. (Agr. 13-1837)

Commercial Standards Monthly.—A Review of Progress in Commercial Standardization and Simplification—Vol. 6, No. 8, February, 1930. Issued by the Bureau of Standards, United States Department of Commerce. Subscription price, $1.00 per year.

General Information Regarding the Department of the Interior, February 1, 1930. Office of the Secretary, United States Department of the Interior. Free. (27-26841)

List of Publications Relating to Labor Child Labor, Employers' Liability, Wages, Insurance, Women, Strikes—Price List 33, 15th Edition. Free at Superintendent of Documents. (26-26497)

Regulations Governing the Admission of Candidates Into the United States Naval Academy as Midshipmen, April, 1930. Bureau of Navigation, Navy Department. Free. (7-32069)

Catalogue of Charts, Maps, Coast Pilots, Tide Tables and Current Tables of the Philippine Islands, January 1, 1930—Serial No. 467. Coast and Geodetic Survey, United States Department of Commerce. Free at Survey. (24-7297)

The Titanotheres of Ancient Wyoming, Dakota and Nebraska (in two volumes), by Henry Fairfield Osborn—Monograph 55, Geological Survey, United States Department of the Interior. Price of Volumes I and II, $9.00. (GS30-4)

Army Orders

Following Infantry officers from Philippine Department to stations named: Maj. Irving H. Engleman and Capt. Roger Hilsman, Fort Benning, Ga.; Capt. Thomas B. Burgess, Fort Eustis, Va.; Capts. Maurice J. McGuire and William F. O'Donoghue, Fort Williams, Me.; 2d Lt. Kenneth C. Strother, Fort Howard, Md.

2d Lt. James Regan Jr., Inf., from Panama Canal Department to Fort Washington, Md.

1st Lt. Walter A. Bigby, Inf., from Philippine Department to Tank School, Fort George G. Meade, Md.

1st Lt. James L. Carman, Inf., from Hawaiian Department to Tank School, Fort George G. Meade, Md.

1st Lt. Frank J. Lawrence, Inf., from Panama Canal Department to Fort Francis E. Warren, Wyo.

2d Lt. Wallace H. Honnold, Inf., from Philippine Department to Fort Douglas, Utah.

Following Infantry officers from Hawaiian Department to stations named: Capt. Farlow Burt, Fort Brady, Mich.; Capts. Guy C. McKinley Jr., Howard N. Merrill, Alvin K. Robinson and Oliver E. G. Trechter, Fort Benning, Ga.; 1st Lt. Henry J. Boettcher, Fort Williams, Me.; 1st Lt. Augustus J. Regnier, Vancouver Barracks, Wash.; 2d. Lt. Richard G. Thomas Jr., Fort Slocum, N. Y.; 2d Lt. Henry C. Burgess, Fort Benning, Ga.; 2d Lt. William W. Lloyd, Fort Crook, Nebr.; 2d Lt. Louis B. Rutte, Fort Brady, Mich.; 2d Lts. Nye K. Elward and Charles W. Van Way Jr., Signal School, Fort Monmouth, N. J.

2d Lt. Russell Blair, Inf., from Fort Hamilton, N. Y., to Panama Canal Department.

2d Lt. William J. Phelan, Inf., from Fort Ontario, N. Y., to Philippine Department.

2d Lt. Ralph W. Zwicker, Inf., from Fort Snelling, Minn., to Hawaiian Department.

1st Lt. Zane I. Adair, Inf., from Organized Reserves, Sixth Corps Area, headquarters Lansing, Mich., to Philippine Department.

Navy Orders

Comdr. Dallas C. Laizure, det. Navy Yard, Norfolk, Va., about May 15; to U. S. S. Medusa.

Comdr. George M. Ravenscroft, det. Naval Academy about May 15; to U. S. S. Utah.

Lt. Comdr. William J. Forrestel, det. Naval War College, Newport, R. I., about May 20; to U. S. S. Rochester.

Lt. Gordon B. Woolley, det. Navy Recruiting Sta., Houston, Tex., as Off. in Chg.; to U. S. S. Wasmuth.

Lt. (jg) Charles Harper Anderson Jr., det. U. S. S. Babbitt; to Naval Academy.

Lt. (jg) Everett H. Browne, det. U. S. S. Pennsylvania; to Naval Academy.

Lt. (jg) Church A. Chappell, det. U. S. S. Tarbell about May 20; to Naval Academy.

Lt. (jg) Jeane R. Clark, det. U. S. S. Barry about May 24; to Naval Academy.

Lt. (jg) Robert A. Cook, det. U. S. S. Camden about May 24; to Naval Academy.

Lt. (jg) Francis S. Drake, det. U. S. S. Dobbin about May 24; to Naval Academy.

Lt. (jg) Herbert K. Gates, det. U. S. S. Omaha about May 20; to Naval Academy.

Lt. (jg) Beverly R. Harrison Jr., det. U. S. S. Omaha about May 20; to Naval Academy.

Lt. (jg) Francis M. Hughes, det. U. S. S. Hatfield; to Nav. Trng. Sta., Hampton Rds., Va.

Lt. (jg) Francis W. Laurent, det. U. S. S. Jacob Jones; to Naval Academy.

Lt. (jg) William J. Longfellow, det. U. S. S. Detroit; to Naval Academy.

Lt. (jg) Edward C. Loughead, det. U. S. S. Breckinridge about July 1; to Nav. Trng. Sta., Hampton Rds., Va.

Lt. (jg) Calvin H. Mann, det. U. S. S. California about Feb 6; to Naval Communications. Ors. Jan. 27. revoked.

Lt. (jg) Richard P. McDonough, det. U. S. S. Sturtevant about May 24; to Naval Academy.

Lt. (jg) John M. McIsaac, det. U. S. S. Cincinnati about May 24; to Naval Academy.

Lt. (jg) James M. Miller, det. U. S. S. Humphreys about May 24; to Naval Academy.

Lt. (jg) Frank E. Shoup Jr., det. U. S. S. Perry about May 20; to Naval Academy.

Lt. Joseph R. Tobin, ors. Jan. 30 to U. S. S. Noa revoked. Det. Navy Yard, Puget Sound, Wash., about Apr. 15; to U. S. S. Noa as executive officer.

Lt. (jg) Robert R. DeWolfe, det. Nav. Air Sta., Hampton Rds., Va., about Feb. 20; to Nav. Air Sta., Pensacola, Fla. for temp. duty.

Lt. (jg) George C. Wright, det. U. S. S. Herbert about May 24; to Naval Academy.

Lt. (jg) Joseph M. P. Wright, det. U. S. S. Arkansas; to Naval Academy.

Lt. Comdr. Sidney E. Dudley (C. C.), relieved add'l duty as asst. to Suptdg. Constr., Marine Engineering Corps, Philadelphia, Pa.; to continue duty as Suptdg. Constr., Newport News Shipbldg. & Dry Dock Co., Newport News, Va.

Lt. John A. Sweeton (C. C.), det. Office of Suptdg. Constr., Marine Engineering Corp., Philadelphia, Pa., about Feb. 28; to Navy Yard, New York, N. Y.

Lt. Peter Treutlein (C. C.), det. Rec. Ship, N. Y.; to duty as Inspr. of Nav. Mat'l, Seattle, Wash.

State Books and Publications

Information regarding these publications may be obtained by writing to the departments in the State given below.

New York—Third Annual Report of Division of Water Power and Control of the State of New York, Albany, 1930.

New Jersey—Report of the Commission to Survey Public Education, Authorized by the State Legislature, Trenton, 1928.

Connecticut—Report of the Board of Education to the Governor, 1926-1928, Part Two, Educational Statistics for the Year 1927-1920, Hartford, 1929.

California—Biennial Report of the State Department of Education of the State of California, Sacramento, 1929.

Wisconsin—Calendar of the Supreme Court of Wisconsin, Madison, 1930.

Kentucky—Biennial Report of the Auditor of Public Accounts of the State of Kentucky, Frankfort, 1929.

California—Report of the Fourteenth Annual Convention of the National Association of State Auditors, Comptrollers and Treasurers, Sacramento, 1929.

Mississippi—Biennial Report of the Attorney General of the State of Mississippi, Jackson, 1927-1929.

Cases of Leprosy Estimated at 1,200 By Health Service

Disease Often Mistaken for Others With Like Symptoms and Is Not Reported Consistently by Officials

An estimate of 1,200 cases of leprosy in the United States is "conservative," according to a statement just issued by the Public Health Service, which noted that leprosy has not been consistently reported to health officials, and that in many cases, leprosy has been confused with other diseases.

The statement, giving a history of the Government's work to control the disease, follows in full text:

That leprosy now exists in the United States and has existed here for a great many years is a truism which seldom occurs to the average person until newspaper headlines attract attention of a community to some unfortunate person who is afflicted with the disease. Then, after a few days' hysterical attention to the subject, the question again drops into temporary oblivion.

Causes Not Well Understood

In some of the States, leprosy has long been a problem of importance because of its presence in neighborhoods populated by descendents of certain of the earlier settlers, and of the fact that its propagation there is due to factors not well understood.

For lack of better explanation, racial or family predisposition, local habits and customs, and the like, are ascribed as causes.

In other States, particularly those with large seaports, cases of leprosy develop among immigrants who have been admitted with the disease in an early and undiagnosable form, and the disease has spread, slowly, to be sure, among the native population.

A third source of infection is that found in our military and maritime population, in the soldier or seaman who has lived in an infected territory for a number of years, has contracted the disease, and has later returned to his native country.

Geographically, the Gulf coast States are considered as the most important foci of leprosy in continental United States; for here is recognized indisputable evidence of the continued propagation of leprosy, and here the disease has existed for generations, having been sustained by contact with leprous communities through commercial sources.

A conservative estimate of the prevalence of leprosy in continental United States places the number of cases at approximately 1,200. A reliable estimate of the number of lepers who have resided in the United States is well nigh impossible, and for many reasons.

Leprosy Often Confused

It is probable that, many times, leprosy has been confused with other diseases with which it has symptoms in common; furthermore, leprosy has not been consistently reported to health officials, and the public records must, of necessity, represent but a surface scratching.

Then, too, in many instances, physicians have hestitated to report known cases of leprosy because of the unwarranted hysteria that would have been provoked by the report of the presence of a case of leprosy in a neighborhood where no suitable facilities existed for isolation and treatment, and where the leper had been permitted and encouraged to move on.

Sometimes this method of dealing with lepers has been most humiliating to the leper and disgraceful to the community.

It was evident more than 50 years ago that some concerted action was necessary if the progress of leprosy in the United States was to be checked, and plans were formulated for having the Federal Government assume control of the situation.

Constructive effort, however, did not crystallise until Feb. 3, 1917, when Congress enacted legislation and provided funds for the establishment of a national home for lepers to be under the direction of the United States Public Health Service.

The entrance of the United States into the World War prevented, for a time, active measures from being taken toward this project, although a committee was appointed to select a site for the proposed leper home.

This committee met with great opposition in obtaining a site, because no State cared to cede territory to the Government for use as a leper settlement, and the problem was finally solved by purchasing from the State of Louisiana the estate occupied by the Louisiana Leper Home.

This was developed by the United States Public Health Service into the present National Leprosarium at Carville, La., where 306 lepers are now under treatment.

New Rates of Woodmen Upheld by Illinois Court

State of Illinois:
Springfield, Feb. 21.

The Illinois Supreme Court has just reversed its former opinion in the case of Jenkins et al. v. Talbot et al., involving the new rates ordered by the head camp of the Modern Woodmen of America. (The full text of the earlier opinion in which the head camp was ordered enjoined from putting the new rates into effect was published in the issues of Dec. 30-31, 1929.)

Under the decision just rendered the court has upheld the new rates which affect older members of the order throughout the country.

Mississippi House Approves Change in Insurance Laws

State of Mississippi:
Jackson, Feb. 21.

Increased authority to the State insurance commission in regulating fire insurance rates was voted by the Mississippi House, Feb. 17, when it passed the bill (H. B. 174), offered by the special committee named to investigate fire insurance and rates, to change the qualifications for membership on the insurance commission and to change the standard of profit of fire insurance companies from a 5 per cent underwriting profit to a "fair and reasonable" profit.

Rates for Compensation Insurance Defended by Commission in Arizona

Chairman Replies to Criticism Relating to Methods of Administration of State Workmen's Law

State of Arizona: Phoenix, Feb. 21.

Replying to criticism of the administration of the State workmen's compensation law, R. B. Sims, chairman of the State industrial commission, Feb. 17, forwarded to all employers insured in the State fund a statement defending a recent increase in rates, salaries paid to employes of the commission and the manner in which large employers of labor carry their own insurance.

Referring to those who have criticized the commission, Mr. Sims said: "No effort has been made to ascertain facts, all of which are readily available. As an employer you are interested in paying only a proper cost for your compensation insurance, and, as pointed out in the enclosed statement, the rate increase does not increase the cost of insurance to employers insured in the State fund, but rather effects a fairer distribution of this cost."

The statement follows in full text:

The rates for compensation insurance originally adopted by the industrial commission in 1926 were necessarily tentative. The compensation law had just been passed, and there was no experience upon which rates might be predicated. Most insurance carriers considered the original rates to be too low and ceased writing compensation insurance in Arizona. The few who remained repeatedly demanded that the rates be put upon a higher level. After three years' operation, it seemed both proper and necessary that consideration be given the experience gained.

Public Hearing Held On Question of Rates

A public hearing was held last Summer. The fullest publicity was given this hearing in advance. The chamber of commerce, the Merchants and Manufacturers Association and the Industrial Congress were asked to notify their members so that all interested might be present and participate. We believe that those employers who attended the hearing and learned the facts as to the construction of rates are satisfied with the action taken.

William Leslie, general manager of the National Council on Compensation Insurance, assembled the statistics upon which proper rates might be based. The National Council is a service organization made up of private insurance companies and State funds. Its sole function is to provide statistics. Mr. Leslie is the highest national authority on compensation rates and, at our request, attended the hearing and presented the facts.

The construction of rates for compensation insurance is generally felt to be surrounded with an air of mystery. Actually, however, the procedure is simple and easily understood. Rates for compensation insurance are predicated upon the cost of accidents in each classification. They are not speculative but are adjusted to conform to the hazard of each classification as shown by the loss ratio of that classification. They are based upon experience; not upon theory.

Having arrived at the exact cost of accidents per $100 of pay roll in each classification, this figure is taken as 60 per cent of the rate necessary. Courts and State insurance commissions throughout the United States have determined that the private underwriters of compensation insurance need and are entitled to an expense loading of 40 cents of each dollar of premium.

Carriers Were Entitled To Higher Rate Level

The fact that the necessary expense loading for the Arizona State fund is only 7 cents means that the other 33 cents (assuming adequate rates) will, according to law, be returned to the employers. The industrial commission writes its insurance for 90 per cent of the established rates and in addition to this original 10 per cent saving, returns all surplus (which under present rates should amount to 23 per cent) as annual dividends to the employers who have earned same.

It clearly appeared that insurance carriers were entitled to a higher rate level. (No employer desires that any company with whom he is doing business should do so at a loss. Consequently those employers who are insured outside the State fund may not object to a proper increase in the rates for those companies with whom they are doing business.) The private carriers possessed the legal right, under the facts to compel the commission to promulgate higher rates. The industrial commission felt that it was neither decent nor consistent with its duty to refuse to take the responsibility of doing a thing which was right and proper, or to attempt to shun this responsibility by insisting upon a court order behind which to hide. Accordingly we held the hearing, ascertained the proper basis, and increased the rates.

An increase in the rates of insurance does not mean an increase in the cost of accidents. The net cost of insurance remains identically the same to employers insured in the State fund. Our quarterly statements show only the apparent result of the rate increase, as dividends are declared but once a year. The industrial commission writes insurance at cost, and will, as in the past, retain only the amount of premium income necessary to meet the actual cost of the accidents; and the surplus will be returned in annual dividends.

Distribution of Cost Said to Be Fairer

The increase in rates solely accomplishes a different distribution of the cost and, without the slightest question, a fairer distribution of cost. The employers with bad accident records will not receive dividends. They, therefore, will pay a larger proportion of the cost than they have paid heretofore. Their insurance will cost them more. The employers with good accident records, those who accord safety its rightful place in the organization of their industry, will receive materially greater dividends. Their insurance will cost them less. It is right and just that employers who have low accident costs should pay less for insurance than those having bad accident records. In the final analysis the employers determine the cost of their insurance. The rates charged by the industrial commission constitute a maximum; the minimum is fixed by the employer. This is the result of the increase in rates.

Mention has been made of the large loss reserve being built up by the commission. This is a reserve out of which payments are being made and will be made to disabled workmen and the widows and children of workmen killed. It is a trust fund to take care of accidents which have occurred, not accidents which may happen in the future. These reserves are computed in accordance with accepted insurance practice under tables in general use throughout the United States.

As regards salaries of the commission's employes, they have been increased so that they are today approximating the salaries paid in industry for like service. The fact that the overhead of the Arizona commission is materially less than the overhead of any competitive State fund in the United States is sufficient answer on this point. This low overhead will be maintained. The overhead in Arizona is 7 per cent, in California in excess of 15 per cent, and the overhead in New York State is in excess of 18 per cent. Among all the competitive State funds, the Arizona State fund ranks fourth in size in the entire United States. Only New York, Pennsylvania and California are larger.

Achievement Attributed To Efficient Employes

Our achievement in this connection, and our low overhead, is in no small part due to the efficiency of our employes. They should not be begrudged a fair wage.

As regards the last point, that of compensation insurance for the large employers in Arizona, it is only necessary to remark that they are 100 per cent self-rating. Their rate of insurance is their individual accident cost. The industrial commission does not make a rate for them. This type of insurance is available to any employer in Arizona who desires same.

Only those employers, however, who with a tremendous pay roll have consequently a fairly constant annual accident spread, can afford to take the chance of carrying their insurance under a self-rating policy. These large employers have their own hospitals and pay the actual cost of their accidents, regardless of what this cost may be.

They maintain on deposit with the industrial commission in excess of a quarter of a million dollars as a guarantee that this compensation cost will be paid. In addition, they pay into the State fund for expenses, the same identical percentage charged every other employer in Arizona, i. e., 7 per cent.

Amount of Compensation At Issue in North Carolina

State of North Carolina:
Raleigh, Feb. 21.

The question of whether or not, under the State workmen's compensation law, the representative or administrator of an employe killed in an industrial accident and having no dependents should receive the full amount of compensation as one wholly dependent receives and more than is awarded to one partially dependent, is involved in two appeals from opinions of individual commissioners to the full industrial commission.

The insurance carriers contend that it is not the intent or purpose of the compensation law to set up estates of deceased employes when they have no dependents, but to compensate such dependents when their financial support is cut off through accidental death of the wage earner. In the two cases to be reviewed the commissioners, individually, have awarded full compensation to the representative or administrator.

Increase Is Shown In Communicable Diseases for Week

Largest Gain Reported in Number of Scarlet Fever Cases, Says Public Health Service

All communicable diseases, except meningitis, showed an increase for the week ended Feb. 1, compared to the corresponding week of last year, according to the weekly health statement made available by the Public Health Service, Feb. 20. The largest increase was in the number of cases of scarlet fever reported, though the largest percentage of increase was in the number of smallpox cases.

The number of deaths from influenza and pneumonia was less than half the number in the same week in 1929. The statement follows in full text:

The 93 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 29,800,000. The estimated population of the 87 cities reporting deaths is more than 29,075,000. Weeks ended Feb. 1, 1930, and Feb. 2, 1929.

Cases reported	1930	1929
Diphtheria:		
46 States	1,619	1,596
93 cities	658	604
Measles:		
43 States	7,670	6,917
93 cities	1,261	1,645
Meningococcus meningitis:		
46 States	227	266
93 cities	86	100
Poliomyelitis:		
46 States	19	18
Scarlet fever:		
46 States	5,422	4,693
93 cities	1,741	1,303
Smallpox:		
46 States	1,628	1,061
93 cities	188	45
Typhoid fever:		
46 States	129	125
93 cities	30	23
Deaths reported		
Influenza and pneumonia:		
87 cities	1,049	1,980
Smallpox:		
87 cities	.....	1
Raleigh, N. C.	.....	1

Mississippi Considers Firemen's Aid Proposal

State of Mississippi:
Jackson, Feb. 21.

Police and firemen's relief funds in any Mississippi city of 4,000 or more population and with fire apparatus of $1,000 or more would be authorized under house bill 280, introduced by Mr. Wilsford, Feb. 17.

The bill provides for a special election in any city contemplating the establishment of such a fund on the issue of a 1-mill levy for the fund. It also provides a tax of 1 per cent on fire insurance premiums written in the State, to be paid by the insurance companies to the State insurance commissioner for distribution to the municipalities having pension funds.

The bill also provides for a local pension fund board and a State board, composed of the insurance commission, secretary of State and attorney general, to be known as the "board of disability and relief appeals" to hear all appeals.

Relief to firemen and policemen injured in line of duty is proposed in the form of 50 per cent of their salaries, not to exceed $100 per month. The bill also provides the same payments to widows of policemen and firemen if they are killed.

Writing of Life Insurance Shows Increase in Vermont

State of Vermont:
Montpelier, Feb. 21.

The 34 life insurance companies licensed to do business in Vermont last year wrote nearly $42,000,000 in new business in the State, according to an announcement by the State insurance department. This was a gain of $2,653,000 over the amount written in 1928.

Iowa Fire Insurance Firm Gets License in Minnesota

State of Minnesota:
St. Paul, Feb. 21.

A license to conduct a general fire insurance business in Minnesota has just been granted to the Town Mutual Dwelling Insurance Co., of Des Moines, Iowa, Garfield W. Brown, State insurance commissioner, announced orally Feb. 19.

Bills Introduced in State Legislatures

Commonwealth of Kentucky

S. B. 346. Mr. Booles. To further strengthen the present law requiring the obtaining of a license to operate a motor vehicle; Motor Transportation.

S. B. 351. Mr. Adams. To allow insurance companies operating in the State to invest their capital and accumulations in building and loan companies; Insurance.

H. B. 572. Mr. Clark. To strengthen the present law relating to the requiring of a license to operate motor vehicles; Motor Transportation.

H. B. 577. Mr. Meiman. To allow insurance companies operating in the State to invest their capital stock and accumulations in building and loan associations; Insurance, Fire and Marine.

H. B. 580. Mr. Francis. To allow the insurance commissioner whenever he deems it prudent for the protection of policyholders in the Commonwealth and as often as once in every four years to examine into the management of fire insurance companies; Insurance, Fire and Marine.

Changes in Status

S. B. 73. To regulate the licensing of motor drivers. Read second time in house and placed in orders of the day.

S. B. 204. To revise and regulate the present workmen's compensation law. Read second time and placed in orders of the day of senate.

H. B. 150. To provide for the creation of a Kentucky industrial safety board in the department of labor. Reported favorably with amendment by way of substitute. Read second time and placed in orders of the day.

H. B. 364. To release owners of motor vehicles from responsibility for injuries to passengers therein. Read second time in house and placed in orders of the day.

H. B. 448. To establish a compulsory insurance law for all operators of motor vehicles operating for hire. Read second time in house and placed in orders of the day.

Commonwealth of Massachusetts

Change in Status

S. 76. To authorize life insurance companies to issue policies which separate investment from insurance. Report, leave to withdraw, to house.

S. 268. Relative to the violation of one-way street regulations as affecting civil liability. Passed by house.

H. 25. Relative to the termination of authority and examination of fraternal benefit societies. Signed by governor, chapter 31.

H. 228. To require indemnity bonds of persons licensed to carry firearms. Report, leave to withdraw.

H. 419. Relative to fire insurance and the adjustment of fire losses. Report, leave to withdraw, accepted by senate. Killed.

H. 504. To require owners of aircraft to furnish security for the payment of damages. Report, next annual session.

H. 513. To amend the law relative to the rights and obligations of foreign title insurance companies. Reported favorably to house.

H. 627. Relative to blanket policies of accident or health insurance. Passed by house, ordered to third reading in senate.

H. 628. That applicants for licenses as insurance agents be not required to pass an oral or written examination. Report, leave to withdraw accepted by house and senate. Killed.

H. 724. Relative to the sale of automatic sprinklers in connection with the placing of insurance. Report, leave to withdraw, accepted by senate. Killed.

H. 762. Relative to the powers of domestic casualty insurance companies. Report, leave to withdraw, accepted by senate. Killed.

H. 765. Relative to insurance protection for lessees of real estate in the event of a public taking. Report, leave to withdraw, accepted by senate. Killed.

State of Mississippi

H. B. 279. Mr. Wilsford. To amend chapter 189 of Laws of 1924 so as to provide how the disability and relief fund for firemen and policemen shall be created and to provide a tax of 1 per cent on premiums of fire insurance companies. Municipalities.

Changes in Status

H. B. 174. To reorganize the State insurance commission and to change the standard of profits of fire insurance companies. Passed by house.

State of Rhode Island

H. 721. Mr. McElroy. A resolution to create a joint special committee to investigate the question of old age pensions. State commissioner of finance.

H. 722. Mr. Easton (by request). To amend article 1, section 5, of chapter 92 of the General Laws and adding section 12a and 13a to article III of said chapter to give minors, illegally employed, benefits under the workmen's compensation law and to increase the compensation to which they are entitled for industrial accidents; Judiciary.

S. 59. Mr. Schlesinger (by request). Same as H. 722; Judiciary.

Commonwealth of Virginia

H. B. 217. Mr. Allman. To amend and reenact section 17 of chapter 259 of the acts of 1920 entitled an act to provide for the organization or admission and the regulation and taxation of incorporated mutual insurance companies other than life, etc. (Reported favorably.)

Changes in Status

S. B. 5. Relative to the reorganisation of fraternal benefit societies into mutual life insurance companies or stock life insurance companies. Killed by senate.

S. B. 17. Relating to contracts for the installation of automatic sprinklers. Signed by governor.

S. B. 62. To amend and reenact section 18 of chapter 474 of the acts of 1926 entitled an act to regulate the operation of vehicles on public highways to govern and protect pedestrians while using such highways, etc. Passed by house.

H. B. 98. To increase maximum workmen's compensation benefits. Passed by senate.

H. B. 219. Mr. Folkes. To amend and reenact sections 1 and 2 of an act entitled an act to provide for the organization, maintenance and supervision of a fire, windstorm, lightning, tornado, hail and automobile fire and theft insurance rate-making bureau, etc. (Reported favorably.)

Report Is Made on Status Of Foreign Insurance Firm

State of New York:
New York, Feb. 21.

An examination into the affairs of the United States branch of the European General Reinsurance Company, Ltd., of London, England, as of June 30, 1929, shows the company to be in possession of admitted assets of $16,006,735, liabilities of $10,115,389, exclusive of $800,000 statutory deposit in the United States, and surplus of $5,891,346 to policyholders, according to a report issued by Albert Conway, State superintendent of insurance.

Since the last examination on June 30, 1926, the company's underwriting reflects a gain of $2,102,176; investment gains totaled $2,895,723, making the aggregate gain from underwriting and investments $4,997,900.

The company's net remittance to the home office during the three-year period was $2,271,000. In addition a contribution of $50,000 was made to capital from surplus, thereby leaving $2,676,900 of the net gain from underwriting and investments to be added to surplus account.

Veterans' Bureau Reviews Compensation Payments

Expenditures during January from the funds for military and naval compensation and insurance were announced Feb. 21 by the Veterans' Bureau as follows:

Death compensation, $2,672,719.74; disability compensation, $14,304,849.02; total, $16,977,568.76.

United States Government life insurance, $17,807,377.36; military and naval insurance, $9,937,670.97.

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Plan of Milwaukee Railroad to Finance Equipment Approved

I. C. C. Grants Petition to Assume Obligation and Liability for Certificates Issued by Trustee

The Chicago, Milwaukee, St. Paul & Pacific Railroad has been authorized by the Interstate Commerce Commission, by report and order in Finance Docket No. 8052, to assume obligation and liability of $2,115,000 of 4½ per cent equipment trust certificates, series K, it was announced Feb. 21.

The certificates will be issued by the Pennsylvania Company for Insurances on Lives & Granting Annuities, as trustee, under an agreement to be dated Nov. 1, 1929, and to be sold at not less than 97.66 per cent of par and accrued dividends in the purchase of certain equipment.

Report of Commission

The Chicago, Milwaukee, St. Paul & Pacific Railroad Company, a common carrier by railroad engaged in interstate commerce, has duly applied for authority under section 20a of the interstate commerce act to assume obligation and liability in respect of $2,115,000 of Chicago, Milwaukee, St. Paul & Pacific Railroad equipment-trust certificates, series K. No objection to the granting of the application has been presented to us.

It appears that the applicant now holds under lease from the manufacturers 1,000 new 70-ton gondola cars, with steel-framed body and steel underframe, constructed at a unit cost ranging from $2,565.01 to $2,661.86, and is having constructed 83 70-ton steel ore cars, the cost of which will be $2,238.77 each. It represents that this equipment, the total cost of which will be approximately $2,822,820, is needed to render efficient service to the public.

Terms of Agreement

The applicant proposes to enter into an agreement under date of Nov. 1, 1929, with certain vendors and the Pennsylvania Company for Insurances on Lives & Granting Annuities, as trustee, creating the Chicago, Milwaukee, St. Paul & Pacific Railroad equipment trust, series K, and providing for the issue by the trustee of not exceeding $2,115,000 of equipment trust certificates in connection with the procurement of the foregoing equipment. The agreement will provide for the acquisition of the equipment by the vendors and its sale and transfer to the trustee and for the leasing thereof by the trustee to the applicant under a lease to be executed simultaneously with the agreement. The agreement also will provide that the trustee shall execute and deliver to the vendors or upon their order, for distribution to the subscribers to the trust, $2,115,000 of equipment trust certificates on receipt of that amount of cash from, or for the account of, the vendors and on receipt from the applicant of $707,820 in cash, representing the difference between the amount of the certificates to be issued and the cost of the equipment, which the applicant is required to pay as advance rent under the terms of the lease. The cash so received by the trustee will be applied in discharging the purchase price of the equipment.

Guaranty of Payment

Each equipment trust certificate will entitle the bearer or, if registered, the registered owner, to an interest of $1,000 in the trust and to dividends at the rate of 4½ per cent per annum, payable semiannually on May 1 and Nov. 1, on presentation of dividend warrants thereto annexed. The certificates will be dated Nov. 1, 1929, and will mature in amounts of $141,000 on Nov. 1 in each year from 1930 to 1944, inclusive. Pursuant to the agreement, the applicant will indorse on each certificate its unconditional guaranty of the payment of the principal and dividends when they become payable.

The lease will provide among other things that the applicant shall pay as rent at the time of execution of the lease, $707,820 in cash, sums sufficient to pay the dividend warrants and principal of the certificates as they become due, all taxes, assessments, and other governmental charges which the trustee may be required to pay, and the necessary and reasonable expenses of the trust. The lease will provide also that, if the actual cost of the equipment should not amount to $2,822,820, then there may be acquired and subjected to the lease other new equipment, to be described in a supplemental lease, of such cost that the aggregate cost of all the equipment shall be at least $2,822,820. At the expiration of the lease and after the applicant shall have completed its payments thereunder, the equipment will be transferred to and become the absolute property of the applicant.

Five Bids Were Received

Bids for the purchase of the proposed certificates were invited from 47 banks and bankers, and 5 bids, representing 8 institutions, were received. The highest bid, which was submitted by Halsey, Stuart & Company, Inc., was 97.66 per cent of par and accrued dividends and, subject to our approval, has been accepted. On that basis the average annual cost to the applicant will be approximately 4.874 per cent.

We find that the proposed assumption of obligation and liability by the applicant as aforesaid (a) is for a lawful object within its corporate purposes, and compatible with the public interest, which is necessary and appropriate for and consistent with the proper performance by it of service to the public as a common carrier, and which will not impair its ability to perform that service, and (b) is reasonably necessary and appropriate for such purpose.

New Commodity Rates Are Suspended by I. C. C.

By an order entered Feb. 21 in Investigation and Suspension Docket No. 3420, the Interstate Commerce Commission suspended from Feb. 24, 1930, until Sept. 24, 1930, the operation of certain schedules as published in Agent L. D. Chaffee's tariff, I. C. C. No. A-193, joint with Agent F. L. Speiden's tariff, I. C. C. No. 1353.

The suspended schedules propose to establish commodity rates on agricultural implements, asphalt, grain and grain products, iron and steel articles, molasses and syrup, petroleum and petroleum products, and salt from Mobile, Ala., and New Orleans, La., via barge and rail lines to destinations in southern States which in numerous instances would result in the application of lower rates from New Orleans, on traffic moving through Mobile than from Mobile proper to the same destinations.

Crude Petroleum Produced in 1929 Gains, Bureau of Mines Discloses

United States Production Reported Slightly Lower in Relation to Increase in World's Total

[Continued from Page 1.]

ceding year by 163,870,000 barrels, or 12.4 per cent.

The production in Texas was figured at 298,441,000 barrels.

Domestic stocks of all oils increased 67,606,000 barrels during the year, and imports dropped 850,000 barrels, it was stated. Total imports were 78,915,000 barrels.

Runs to stills of both domestic and foreign crude petroleum amounted to 987,708,000 barrels, a gain of 8 per cent over 1928, it was pointed out. All the increase was in domestic crude runs.

The percentage of gasoline recovery continued upward, and amounted to 44 per cent in 1929, as against 41 per cent in 1928. There was a 15 per cent gain in gasoline output, which totaled 434,241,000 barrels.

The domestic demand for gasoline increased 13 per cent over 1928, gasoline exports rose 16 per cent, imports more than doubled, while stocks of gasoline showed an upward trend, it was stated.

Petroleum produced by the rest of the world totalled 482,604,000 barrels, or 59,344,000 barrels more than in 1928, according to the statement which follows in full text:

The world's production of crude petroleum during 1929 is estimated at 1,488,604,000 barrels, an increase over 1928 of 163,870,000 barrels, or 12.4 per cent.

Production outside of the United States reached a total of 482,604,000 barrels, or 59,344,000 barrels more than in 1928. Domestic production is estimated at 1,006,000,000 barrels, an increase of 104,526,000 barrels.

The rate of increase in domestic production did not quite equal that of the foreign oil-producing countries, consequently, the ratio of the United States production to the world total dropped from 68 per cent in 1928 to 67.6 per cent in 1929.

Venezuela Continues In Second Position

Venezuela and Russia maintained their respective positions as the second and third largest producing countries, while Persia, with a production of slightly more than 6,000,000 metric tons, moved into fourth place, with a slight margin over Mexico.

Trinidad advanced into tenth place, ahead of Argentina and British India, while among the smaller producing countries, Russian, Sakhalin and Canada reached, for the first time, an equal production of more than 1,000,000 barrels.

The three principal shipping fields in Venezuela, Lagunillas, La Rosa-Ambrosio, and Mene Grande, showed an increase of approximately 32,000,000 barrels over 1928, accounting for virtually all of the increased production of the country. Production in Russia increased by approximately 15,000,000 barrels.

Persia and Rumania continued to increase crude oil production at the rate noted for the two preceding years, while Mexico again showed a decrease. Production of heavy crude in Mexico declined throughout the year, while light oil production increased primarily as the result of new developments at Tonala, Isthmus of Tehuantepec.

Crude Petroleum: According to preliminary figures compiled by the Bureau of Mines, Department of Commerce, from companies that operate gathering lines, 1,005,598,000 barrels of crude petroleum was transported from producing properties in the United States during 1929.

The final figure of actual production (oil brought to the surface), which will include revisions to the monthly data, crude oil consumed on the leases, and the net change in producers' stocks, may amount to 1,006,000,000 barrels. This represents a new record for total production and is 104,500,000 barrels, or 12 per cent above the 1928 output.

According to preliminary data, the world's production of crude petroleum in 1929 amounted to 1,488,604,000 barrels, an increase over 1928 of 12 per cent. Of this total the United States produced 67.6 per cent as compared with 68.0 per cent in 1928 and 7..4 per cent in 1927.

The production of crude petroleum in the United States increased more or less steadily up to August, the peak month. The total output in August amounted to 92,288,000 barrels, or very close to a daily average of 3,000,000 barrels.

Production decreased steadily during the last four months of the year but this came coincident with a steadily decreasing demand and stocks accumulated in all months except November. A factor in the increased output during the Summer months was a price increase inaugurated in the mid-continent in May.

Stocks of All Oils Increase in Year

Stocks of all oils increased 67,606,000 barrels in 1929, of which over 18,000,000 barrels was in refined products. November was the only month of the year 1929 to show a decrease in stocks of all oils. This decrease amounted to 3,010,000 barrels, and resulted mainly from a drastic curtailment at Santa Fe Springs and a surprisingly small decrease in gasoline consumption.

Texas, for the second successive year, was the leading producing State, with an output of 298,441,000 barrels. California was comparatively close to the top, with a production of 292,037,000 barrels. Oklahoma dropped from second to third place, although its output of 253,704,000 barrels represented a small increase over 1928.

These three States accounted for 84 per cent of the total output as compared with 82 per cent in 1928. The major portion of the new production in Texas came from West Texas, Gray County (Panhandle), the Bruner field in Gradalupe County, and from extensions and deeper wells in the Gulf coast fields.

The most important factors in the increased output of California were the rapid development of the various deep sands at Santa Fe Springs and the new production secured at Elwood. Despite the discovery of a number of new pools in the Greater Seminole area and the extension of some of the older ones, the output of the Greater Seminole area showed comparatively little change in 1929.

The major portion of the new production of the State was developed at the Oklahoma City field, which produced nearly 9,000,000 barrels in 1929 as compared with practically nothing in 1928. The output of the Appalachian district was higher, that of the Central States, except Michigan, was lower.

Imports of crude petroleum during 1929 amounted to 78,915,000 barrels, or about 850,000 barrels under the 1928 figure. Over 50,000,000 barrels of these imports came from Venezuela and nearly 13,000,000 barrels, each, from Mexico and Colombia. Exports of crude oil increased from 18,966,000 barrels in 1928 to 26,374,000 barrels in 1929, or 39 per cent.

Stocks of crude petroleum (exclusive of producers' stocks) east of California increased from 368,353,000 barrels on hand Jan. 1 to 381,391,000 barrels on Dec. 31, an increase of about 13,000,000 barrels. This increase was less than the 1928 increase but in California the situation was quite different with about 36,000,000 barrels added to crude and fuel stocks compared with 2,000,000 barrels accumulated in 1928.

Gasoline Recovery Rate Continues to Rise

Refined products: Runs to still of crude petroleum, both domestic and foreign, in 1929, amounted to 987,708,000 barrels, an increase over 1928 of 8 per cent. All of this increase was recorded in domestic crude runs; in fact, the use of foreign crude at refineries declined by slightly over 2,000,000 barrels in 1929.

The percentage recovery of gasoline continued its upward trend and amounted to 44 per cent in 1929, as compared with 41 per cent in 1928. This and the increased quantity of crude processed was reflected in a 15 per cent gain in output which, for the year, totaled 434,241,000 barrels.

The indicated domestic demand for gasoline amounted to 371,852,000 barrels, an increase over 1928 of 13 per cent. Gasoline exports increased 16 per cent; imports more than doubled and amounted to 8,868,000 barrels.

Stocks of gasoline accumulated rapidly early in the year, particularly in January, reached a peak of 48,205,000 barrels on Mar. 31, was at its low point of 33,222,000 on Sept. 30, and increased to a total of 43,115,000 barrels on the last of the year, this being over 10,000,000 barrels above the total on the first of the year.

The statistics of both kerosene and lubricants in 1929 were practically unchanged from 1928. The production of gas oil and fuel oil increased, due to the greater crude throughout but the demand east of California increased sufficiently to result in a decline in stocks of 500,000 barrels. Wax production was unchanged but demand, both from domestic and foreign sources, decreased and stocks increased materially.

Natural gasoline: According to the monthly (preliminary) figures, the output of natural gasoline in 1929 was 2,195,400,000 gallons as compared with 1,777,700,000 gallons in 1928, a gain of 23 per cent.

The major portion of the increase was recorded in the California fields, particularly at Santa Fe Springs, although the Greater Seminole area recorded a somewhat surprising increase of nearly 100,000,000 gallons.

Stocks at the plants were practically unchanged, hence the increase in output was absorbed by refineries for blending purposes and by the export trade, which is reported to have grown rapidly in 1929.

Rate Decisions Announced by the Interstate Commerce Commission

The Interstate Commerce Commission on Feb. 21 made public decisions in rate cases which are summarized as follows:

No. 17330 and related cases.—Illinois Coal Traffic Bureau v. Arkansas Valley Interurban Railway et al. Decided Feb. 11, 1930.

Rates on bituminous coal, in carloads, from the southern Illinois coal district to destinations in Missouri, Iowa, Kansas, and Nebraska found not unduly prejudicial, but unreasonable. Reasonable rates prescribed for the future.

Failure to maintain uniform screening specifications and rates on small sizes of prepared coal and on fine coal the same percentage or the same amount lower than the rates maintained on lump coal from coal districts in Illinois, Missouri, Arkansas, Oklahoma, Kansas, New Mexico, Colorado, and Wyoming to destinations in Iowa, Missouri, Kansas, and Nebraska found not unduly prejudicial.

No. 17464 and related cases.—Milne Lumber Company v. Michigan Central Railroad. Decided Feb. 4, 1930.

1. Demurrage charges collected on one carload of lumber at Detroit, Mich., found inapplicable in part. Reparation awarded.

2. Demurrage charges collected on one carload of lumber at Detroit, Mich., found inapplicable in part. Team-track storage charges collected found applicable. Reparation awarded.

No. 18183 and related cases.—Intrastate rates on coal to East St. Louis, Ill. Decided Feb. 10, 1930.

1. Findings in previous report, 142 I. C. C. 95, in respect of rates on bituminous coal, in carloads, from mines in the Belleville, Du Quoin, Chicago & Illinois Midland, and southern Illinois groups in Illinois, and in the western Kentucky group, to St. Louis, Mo.; and from mines in the inner portion of the Belleville group, Du Quoin, Chicago & Illinois Midland, and southern Illinois groups to East St. Louis, Ill., affirmed.

2. Rates on bituminous coal, in carloads, from the Belleville and southern Illinois groups to St. Louis, Mo., prior to June 28, 1928, found not unreasonable. Complaints in Nos. 20613, 21155, and 21047 and sub-numbers dismissed.

Modification Asked In Plan to Improve Philadelphia Harbor

Additional Fund for Maintenance of Delaware River Channel Advocated by Chief of Army Engineers

Modification of the existing project for Delaware River from Philadelphia, Pa., to the sea to provide a 35-foot channel at an estimated cost of $3,915,000 with an additional maintenance of $240,000 annually is recommended by the Chief of Engineers, Maj. Gen. Lytle Brown, in a report transmitted to Congress. A summary of the report, made public Feb. 21 by the Department of War, follows:

The Chief of Engineers, Maj. Gen. Lytle Brown, has forwarded to the Secretary of War for transmission to Congress his report on the preliminary examination and survey of the Delaware River, Pennsylvania, New Jersey and Delaware.

The Philadelphia harbor is one of the Nation's most important ports. Its improvement, however, is so difficult and expensive that channel dimensions should be limited to the actual needs of commerce and navigation. It appears that a fully maintained channel of 35-foot depth is all that can be justified at the present time.

The most urgent needs are widening the channel at certain places, together with works for reducing the cost of maintenance. A report covering the latter feature was recently submitted to Congress and will be found in House Committee Document No. 6, Seventy-first Congress, First Session. Facilities for anchorage and the maneuvering of vessels are inadequate. The additional anchorage areas and channel widening proposed are believed to be fully justified.

Modification of the existing project for Delaware River from Philadelphia to the sea is deemed advisable so as to provide for an anchorage 35 feet deep and about 6,400 feet long at Port Richmond; for straightening the channel and extending the 1,000-foot width from Philadelphia harbor to Horseshoe Bend; for an anchorage area 30 feet deep and about 3,500 feet long at Gloucester, N. J.; for an anchorage 35 feet deep and about 7,300 feet long in the vicinity of Mantua Creek; and for the maintenance of any areas dredged by local interests to a depth of 35 feet between the channel and a line 100 feet channelward of the pierhead line between Point House Wharf and the Philadelphia Navy Yard, when in the opinion of the Chief of Engineers such areas are so located as to be of benefit to general navigation; at a total estimated cost of $3,915,000, with $240,000 annually for maintenance in addition to that now required.

Missouri City Begins Suit Against Utilities Company

State of Missouri: Jefferson City, Feb. 21.

A suit to oust the Missouri General Utilities Company from the City of Salem, where the company operates an electric light and power plant, has been filed in the supreme court by officials of the city through the attorney general, Stratton Shartel, alleging that the company's franchise has expired.

The franchise expired Jan. 25, 1929, after 90 days' legal notice had been given by the city, the ouster bill recites, and the company has refused to discontinue operations in Salem in accordance with an ordinance directing it to do so.

The city also is protesting before the public service commission against a proposed reduction in rates by the company. It is alleged by the city that the reduction is designed to prevent the municipal plant in Salem from securing business.

Rate Complaints Filed With the Interstate Commerce Commission

The Interstate Commerce Commission just made public complaints filed with it in rate cases which are summarized as follows:

No. 23128.—Shevlin-Hixon Company of Bend, Oreg., v. Great Northern Railway et al. Against "sawing-in-transit arrangement of the towing defendants as a device to free the saw mill companies at Coeur d'Alene of the expenses of towing their logs to their respective sawmills, to saddle the said expense upon the railroad defendants and to defeat the published freight rates from Coeur d'Alene and the differential relationship thereof, with the rates from the competing sawmill points, including Bend, Oreg., and the acts and practices of the railroad defendants in acquiescing in the said arrangement and permitting it to operate on the basis of the joint through rates published by their duly authorized agent," as unlawful and in violation of the act; the divisions to the towing defendant being tantamount to rebates and concessions to the timber companies; it being alleged that the towing defendants are not common carriers. Ask for cease and desist order, the cancellation of the said joint through rates and the sawing-in-transit arrangement and such other steps as may be necessary to bring their practices, rates and arrangements into conformity with the provisions of the act; and for an inquiry into the lawfulness of the divisions and the lawfulness in the sawing-in-transit arrangement, and, further, if such joint through rates and sawing-in-transit arrangement via and at Coeur d'Alene are permitted to be continued on any basis then that the defendants be required to establish, maintain and apply similar rates and arrangements at Bend, Oreg., or such other arangements as the Commission may deem just and reasonable.

California to Require Bus Stops at Crossings

State of California: Sacramento, Feb. 21.

Motor buses operated in California carried more than 30,000,000 passengers in 1929 and highway accidents involving the vehicles resulted in the death of 14 persons and the injury of 366, according to a statement issued by the State railroad commission.

Only two persons were injured during the year as the result of bus collisions with trains and street cars, the statement says. Reference is made to the effectiveness of the commission's rule requiring buses to stop at railroad crossings. Buses are required by law to come to a full stop at such crossings when warning signals are in motion and the commission announces that new rules are to be adopted requiring a full stop in all cases.

Property damage to bus equipment as the result of accidents during 1929 is estimated at $25,546, the statement says.

Regulation of Interstate Exchange Of Electricity Discussed at Inquiry

Transcript of Testimony Covers Problem of Federal Control of Transmission of Power

Excerpts from transcript of testimony Jan. 15 by Preston S. Arkwright, of Atlanta, Ga., chairman of the public policy committee of the National Electric Light Association, at the hearing before the Federal Trade Commission in its investigation of publicity phases of public utility activities were printed in the issues of Feb. 19, 20 and 21. At the close of the portion printed Feb. 21 Mr. Arkwright, in response to a question by the examiner, discussed the effect of the interstate commerce clause in the Constitution. The conclusion of his response and further excerpts from transcript of testimony proceed as follows:

Because of the so-called effect of intrastate rates upon interstate costs and rates it has resulted in transferring from State or local into Federal control and regulation practically all rates and other matters affecting railroads, whether they be interstate or intrastate. Now, that may not be due, as you say, to the desire of politicians, and yet it is due to some extent, I think, to the fact that Federal courts construe the Federal laws and Federal Constitution, and they are inclined naturally, I think, to construe them in favor of the Federal power, and because Federal commissions are inclined to construe their powers rather broadly. I don't say not properly or justly so, but they see their obligations to regulate interstate movements and, in order to completely fulfill their duty, they take over things that I do not believe the original framers of the Constitution possibly imagined was intended to be surrendered to Federal control and taken away from State control.

Q. Well, as the matter stands now, the State commissions, I think you will agree, cannot regulate the interstate transmission of electric power. A. I do not know whether they can or not. Perhaps they can, so far as any effect is concerned so long as the Federal Government does not itself enter the field of regulation, although the Federal Government may have the power.

Q. Perhaps you will agree with this: That up to date, Congress has not made any effort to regulate the interstate transmission of electric power in the case of companies not operating under license from the Federal Power Commission. A. I think that is right.

Q. Can you agree with me, Mr. Arkwright, that one of the problems, one of the public problems, confronting the Congress is the question as to whether anything shall be done about this, and, if so what? A. I do not think it is a problem, Judge Healy. I do not think that any regulation by Congress is necessary. I do not think it is desirable.

By Mr. Healy (Jan. 16):

Q. On the matter of publicity, the N. E. L. A. has taken the position, has it not, that the support of the State regulatory bodies and their efficiency was a means of offsetting the program in favor of Government ownership?

A. I do not want to seem to take advantage of your question and make any argument, but proper regulation of an agency of this type, which agency operates without competition from similar services in the same field, the fact that the State, on behalf of the public, has the right to regulate and control it, and the intelligence and efficiency of that regulation, naturally keeps down dissatisfaction with that agency. To the extent that dissatisfaction with the existing agency is minimized or prevented, it removes the incentive for a change in the agency. Consequently, naturally, it has its influence on any proposal for government or political ownership of that same service agency, so that I would say the National Electric Light Association, the industry, would be interested in seeing that the commissions have the power and the capacity to efficiently regulate and control them, and that that fact is understood by the public.

Q. The question is, if I remember what I said: Has the N. E. L. A. undertaken to tell the public that that regulation is efficient and capable?

A. I would say it had.

Q. Well, has it done that with the purpose, among other purposes, of making weight against the municipal ownership campaign?

A. I would say it has.

Q. All right, thank you. Now, has the N. E. L. A. preached the advantages of interconnection with the same thing in mind, among other purposes?

A. It has preached, to use your word, the advantages of interconnection, but I would not say that it did it for the purpose or for the effect upon Government ownership. Again, please let me say that the character of the service performed by the existing agency, the satisfactory manner in which it is performed, creates satisfaction on the part of the public in the existing service agency and a reluctance, therefore, to change from it to any substituted form. So that anything that removes prejudice against the present method of supplying electric light and power service makes it more difficult for one who wants to make the change to create the grievance in the public mind that would lead the public to make the change.

Q. It does not necessarily rest on the grievance, does it, Mr. Arkwright?

A. From my experience in it, in every campaign that I have seen and the ones that have been carried on in my territory, the chief method is to attack the private company for the purpose of creating in the public mind a grievance against it, in order that they might be induced to change from it and accept government ownership.

Q. Does the private company sometimes attack municipal plants? A. Defensively only; the existing method being generally by private ownership, I would not think that people in the business (I would not do it) go out and discuss government or municipal ownership at all. It would be only when someone brought it in as a proposal that we would discuss it, and it would then be in defense against an effort made by someone else to change from the present method.

Q. I thought that you had rather tried to convey the idea that some of the directors of the information bureaus had acted not entirely in accord with the policy of some of the leaders. A. You did? I do not confine that to them. I say all men make mistakes.

Q. But I think you perhaps will agree with me—maybe I am wrong—that in rather conservative circles and among those who are quite well disposed toward your industry and those in it, that there has been some rather severe criticism of some of the lines taken by these publicity men? A. I think there has been, yes.

Q. And that is not from radical or socialistic circles? A. That is right.

Q. Now, then, just turn to the question relating to textbooks, Mr. Arkwright. Did you read the testimony that was given here by Mr. Jenkins from Chicago concerning what passed between him and a certain textbook author, and the company in Chicago which printed it? A. I have not read the record in this case, Judge Healy, nor I have not all of the newspaper reports of The United States Daily report of it. I do read, as far as I have opportunity to do it, the reports from The United States Daily and the newspapers about it, and I have read something with reference to Mr. Jenkins' testimony on that subject, although I have not read the testimony itself in detail.

Q. But what you have said in your statement on the subject of textbooks was based on your knowledge and understanding, and was not based on any construction of Mr. Jenkins' testimony or the exhibits produced in connection therewith, was it not? A. It was not.

Q. What? A. I do not recall saying anything about textbooks particularly in my testimony.

Q. Possibly I am wrong. I was quite certain you did. A. I intended, thinking that Mr. Weadock had covered the matter, I had intended not to refer to the matter, thinking he had covered it, but I may have. I did not attempt to explain textbooks.

Q. Your attention has not been called to the testimony of Mr. Jenkins or the exhibits produced in connection therewith? A. It has not.

Q. Or the testimony of Mr. Glazier? A. It has not.

Q. Or Mr. Herwig, who came from Wisconsin, if I remember correctly? A. I have never heard of him.

Q. He was a director of one of these information bureaus at the time. Did you have your attention called to any place in this record where it had been suggested to local managers of lighting companies that they should use their influence with the local school authorities to have the textbooks taken from the school? A. To have certain textbooks taken from the school?

Q. Yes. A. I have seen references to surveys of textbooks in the schools.

Q. Yes, the surveys themselves have been put into the record. A. And a discussion of incorrect statements in these textbooks, but I am not acquainted with any effort to have those textbooks corrected. I have heard something of the Jenkins' incident in connection with Ginn & Company about some specific reference that was in a textbook in the making, but I am not competent to testify as to exactly what he did do or testify about it.

Q. If you said anything in your direct examination on the subject of textbooks, it did not take into account the matters I am referring to now? A. It did not.

Q. There was a pamphlet gotten out in Georgia, and I think Mr. Cope testified about it. I think you know both Mr. Cope and Mr. Willard Cope. A. I do.

Q. They have both been connected with the Georgia information bureau, have they not? A. They have.

Q. And your companies in Georgia contribute to the support of that committee? A. The largest contributor.

Q. How? A. It is the largest contributor.

Q. You have attended meetings of the committee? A. Some of them.

Q. You have had correspondence with Mr. Cope regarding its activities?

A. I have, yes, sir.

Q. He has referred matters to you, has he not, regarding matters of the committee?

A. Some of them. I was not always a member of the committee, nor did I ever hold any office in the committee.

Q. No, but you did——.

A. My company was the largest support of the committee.

Excerpts from transcript of Mr. Arkwright's testimony Jan. 15 will be continued in the issue of Feb. 24.

Plans to Construct Bridge At Rochester Approved

The Department of War stated Feb. 21 that the Assistant Secretary of War, F. Trubee Davison, has approved the application made by the City of Rochester, N. Y., for approval of plans of a bridge to be constructed across the Genesee River, 4½ miles upstream from the mouth of the river, under authority of State law.

Five States Are Affected In Suspension of Tariffs

By an order entered Feb. 21 in Investigation and Suspension Docket No. 3421, the Interstate Commerce Commission suspended from Feb. 24, 1930, until Sept. 24, 1930, the operation of certain schedules as published in supplement No. 12 to Agent J. E. Johanson's I. C. C. No. 2130.

The suspended schedules propose to eliminate certain direct routes in connection with joint through rates between points on the Pan Handle and Santa Fe Railway in Texas and points in Colorado, Nebraska, New Mexico and Wyoming and establish in lieu thereof more or less indirect routes via the Atchison, Topeka & Santa Fe Railway system lines and connections.

Louisville & Nashville Authorized to Issue Bonds

The Interstate Commerce Commission made public Feb. 21 the following uncontested finance decision:

Report and order in F. D. No. 8077, authorizing the Louisville & Nashville Railroad Company to issue $15,000,000 of first and refunding mortgage 4½ per cent gold bonds, series C, and $5,000,000 of unified 50-year 4 per cent gold bonds; said bonds to be sold at not less than 92.5 per cent of par and accrued interest and the proceeds used to replenish the applicant's treasury to meet maturing indebtedness, and to provide funds for making additions and betterments, approved.

Merger Authorized Of Northern Pacific And Great Northern

Burlington Line Is Excluded From Unification by Order of Interstate Commerce Commission

[Continued from Page 1.]

will be effectuated by the action of the majority in this proceeding."

Continuing, Chairman McManamy said:

"What is here outlined is therefore, for all practical purposes, a complete consolidation of these properties into one corporation for ownership, management, and operation. * * * The consolidation here authorized goes far beyond any power that is given us by paragraph (2) of section 5 under which the application was filed. * * * The consolidation of these two lines is in complete disregard of the specific mandate of Congress that 'competition shall be preserved as fully as possible.'"

Mr. Eastman's Objections

Commissioner Eastman agreed, in the main, with Chairman McManamy's dissenting opinion.

"The unification proposed is not to my mind a mere acquisition of control within the purview of section 5 (2)," said Mr. Eastman. "It is, to all intents and purposes, a consolidation of the railroad properties in question into one system for ownership and operation, and hence is within the purview of section 5 (6).

"If this is not so, the distinction between the two forms of unification falls short of a difference, and is a matter of form rather than substance. Obviously," emphasized Commissioner Eastman, "the attempt to bring this unification under section 5(2) is pure subterfuge, such as we ought not to countenance. It trifles with the law.

State Laws Not Applicable

"Incidentally, those who devised this subterfuge seem to have been unable to utilize the corporation laws of any State in which the system will actually operate."

The Commission's report declared that, "although the applicants' plan does not contemplate actual consolidation, it is of such permanent character that our approval of it, with control of the Burlington passing into the same hands that would control the northern lines, would be clearly incompatible with our consolidation program.

"This is not to say," the report emphasized, "that the northern lines should be denied a permanent entrance into the Chicago district; that question we are not deciding now."

Route of Two Lines

The Great Northern Railway operates 8,164.14 miles of line, of which 558.87 miles are in Canada. Its principal eastern termini are St. Paul, Minneapolis, and Duluth, Minn., Superior, Wis., and Sioux City, Iowa. Its principal western termini are Vancouver, B. C., Seattle and Tacoma, Wash., and Portland, Oreg.

The Northern Pacific Company operates 6,668.43 miles of line, of which 78 miles are operated under trackage rights in Canada. Its principal eastern termini are St. Paul, Minneapolis and Duluth, Minn., and Superior, Wis. Its principal western termini are Vancouver, B. C., Seattle and Tacoma, Wash., and Portland, Oreg.

(Excerpts from the report will be published in subsequent issues.)

Production of Soft Coal Shows Decline for Week

The total production of soft coal during the week ended Feb. 15, including lignite and coal coked at the mines, is estimated at 10,300,000 net tons. Compared with the output in the preceding week, this shows a decrease of 636,000 tons, or 5.8 per cent. Production during the week in 1929 corresponding with that of Feb. 15 amounted to 11,941,000 tons.

The total production of Pennsylvania anthracite during the week ended Feb. 15 is estimated at 1,737,000 net tons, a decrease of approximately 0.5 per cent from the output in the preceding week. Production during the week in 1929 corresponding with that of Feb. 15 amounted to 1,736,000 tons.

The total production of soft coal for the country as a whole during the week ended Feb. 8 is estimated at 10,936,000 net tons, as compared with 11,628,000 tons in the preceding week.

(Issued by Bureau of Mines.)

Delay for Montana Power Project Asked

Mr. Kvale Would Hold Up Permits Pending Inquiry

Permits to develop the Flathead power sites in Montana would be held up until investigation of the Federal Power Commission is completed, and until action is taken on President Hoover's recommendation for a commission made up of full-time members, under a resolution introduced in the House Feb. 21 by Representative Kvale (Farmer-Labor), of Benson, Minn. The resolution follows in full text:

Resolved, that it is the sense of the Congress of the United States that until said investigation by the Senate Committee on Interstate Commerce shall have been completed and the Committee shall have made formal report of its findings, and until the Congress of the United States shall have considered and take action upon legislation embodying the aforesaid recommendations of the President, no permit shall be granted by the Federal Power Commission, and no license shall be granted by the Federal Power Commission involving the said Flathead power sites.

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Types of Property Included in Estates Shown in Returns

Analysis of Tax Statistics Reveals Percentage of Insurance; Better Utilization of Records Advocated

An analysis of Federal estate tax returns made in 1928, for which statistics have just become available, was presented in a recent address by Joseph S. McCoy, Government Actuary, Department of the Treasury, before the Mid-Winter Trust Conference, conducted by the American Bankers Association. Publication of the full text of the address was begun in the issue of Feb. 21 and concludes as follows:

Naturally, there is a limit to the number of these large salaries. We know that in 1928, 540,893 individuals returned taxable income to the Federal Government of $5,000 or more, received from salaries, commissions, etc., or in other words, income earned by their own personal services. Of these, 19,229 returned income in excess of $25,000 for the calendar year 1927. Of these, 746 returned such income in excess of $100,000, while 4 returned such income in excess of $1,000,000. The total of such income earned by these four persons totaled $6,527,363.

Of these, it is probable that, in case of death, some 12,000 would leave no estate other than the proceeds from insurance policies, and over one-half of them would be residents of New York. On the other hand, according to the report of the New York insurance commission, based upon the returns of nearly all the companies doing business in the United States, the average annual number of insurance policies terminated by death during the four years ended Dec. 31, 1927, in the United States, was 135,750, valued at $349,958,750, or an average policy of $2,578. This average policy for 1927 was $2,685.

Four-Year Average Computed

The four-year average for all policies terminated by any cause whatever was $2,457, and for 1927, $2,573. Compare these averages with the average insurance known to have been carried by decedents whose estates were returned to the United States for tax. The number of policies in force in the United States Dec. 31, 1928, in excess of $50,000 each was 15,000.

The percentage of the total value of the estates for which returns were made to the Federal Government during 1928 in the form of insurance was 2.95 per cent; for 1927 it was 2.83 per cent; and for 1926, 2.68 per cent. This shows a slight, but steady, increase. These statistics, however, do not tell the whole story. The average amount of insurance held by estates returning in 1926 was $6,896; in 1927, $9,510, and in 1928, $12,776.

The percentage of the value of the estate held in the form of insurance varies greatly. The smaller the estate the larger the percentage so held. In 1927 the 229 estates returning gross estate of less than $50,000 each held 7.89 per cent of the total in the form of insurance. In 1928 the 99 returns for similar estates held 20.5 per cent in the form of insurance. Many of these must have belonged to the large-salary group, as insurance formed the largest part of the estate. These were the smallest estates returned, but they held the largest percentage of their total in insurance.

The 1,864 nontaxable estates in 1928, with gross estate in excess of $50,000, carried insurance to the extent of 5.55 per cent. The 2,184 returns of net estate not in excess of $50,000 returned insurance to the amount of 4 per cent of the total.

This percentage decreased rather irregularly, with a few recoveries, until net estates valued between $3,500,000 and $4,000,000 returned less than one-fifth of 1 per cent of insurance. The percentage again increased, irregularly, until the eight estates having net values in excess of $10,000,000 each, with an aggregate gross value of $331,880,866, returned only $14,540 in insurance. It must be remembered that we do not know how many policies were in force, nor the number included in any one estate, nor the number of estates including no insurance.

Remainder of Value Listed

The remaining value of the estates reported consisted in property, 6 per cent; transfer made within two years prior to date of death, 2.5 per cent; powers made in contemplation of death, one-half of 1 per cent, and property from an estate taxed within five years, value at time of death of present decedent, about 2.4 per cent.

The deductions allowed reduced the gross to a net taxable value of $1,943,428,661, a reduction of over 47 per cent. The largest exemption or deduction was the $100,000 specific exemption under the 1926 act, and the $50,000 under the 1924 act. The number receiving the $100,000 was 7,609. This totalled, according to the report, $784,350,000, as compared with $798,910,000 for 1927.

The deduction for debt, which included unpaid mortgages, etc., amounted to $392,432,336, as compared with $310,596,254 for 1927. The deduction on account of charitable, public, and similar bequests was $216,099,140. For 1926 this was $130,974,586. Funeral and administration expenses amounted to $144,688,964, as compared with $129,578,621 for 1927. Property from an estate taxed within five years, valued at date of previous decedent's death, was $71,857,039, as compared with $73,482,328 for 1927. The only other allowable deduction was the insurance exemption. These totaled $1,661,225,428, as compared with $1,735,840,229 for 1927, and $1,504,212,412 for 1926.

The return schedule for estate tax, under the classification of funeral and administration expenses, provides that the executors' or administrators' commissions shall not exceed the amount allowable by the law of the jurisdiction, and not in excess of that usually allowed in cases similar to the estate under audit. All expenses must be itemized.

The total of these deductions for all the 8,079 estates returning a gross of $3,503,238,684 was $144,688,964, an average of $17,909, or 4.13 per cent of the average estate.

Costs Are Compared

The average cost for the 1,963 nontaxable estates reporting was $7,577, or 8.24 per cent of the gross. These alone varied materially from the general average. All taxable estates from the smallest, with net income under $50,000, to those with a net of over $6,000,000, had from 4.58 per cent as a maximum to 3.6 per cent as a minimum percentage of gross, deducted on account of these costs. Estates between $6,000,000 and $7,000,000 net had 2.82 per cent for their costs, while the three estates with net between $7,000,000 and $8,000,000 paid 5.45 per cent. The eight estates with net in excess of $10,000,000, aggregating $331,880,866 gross, paid $1,951,342 average, or 4.7 per cent of the gross.

In addition to the returns on account of resident decedents, there were filed, as already stated, 2,157 returns on account of nonresident decedents. Of these, six had no net estates; and 1,900 had net estates under $50,000 each. Only seven of these estates exceeded $1,000,000 each, the largest of which had a net estate of $1,730,983. The total tax returned was $1,541,433, with a tax credit of $143,409, leaving as the payments due the United States, $1,398,024.

New Tabulation Favored

A tabulation of all the statistics returned in the 8,079 returns of resident decedents, and the 2,157 returns of nonresident decedents made during 1928, would have cost the Government very little more than did the tabulation actually made. These would, however, be of infinitely more value.

The Bureau of Internal Revenue—that great storehouse and, seemingly, grave of unique information—does not seem to appreciate the value of its holdings. It is false economy to skimp where statistics are concerned. Tabulations along many lines would furnish a basis that would assist collections and increase revenue materially, in addition to the aid it would give many lines of outside business. A little increase in appropriations would possibly remedy this condition, and render the Bureau of general service, instead of it being merely a tax collector.

Relative to estates alone, statistics are easily available covering the form and cost of administration as distinguished from funeral expenses, the number of estates actually carrying insurance and the graduation as to the number of policies and amount of insurance so held, and many other items that appear on the face of the returns but which are not tabulated for the reports. The returns of all gross estates in excess of $50,000, administered within the United States, even if not taxable, should also be continued.

The foregoing address was delivered before the Eleventh Mid-Winter Trust Conference under the auspices of the Trust Company Division, American Bankers Association, in New York City on Feb. 19.

First Deficiency Appropriation Bill Passed by House and Sent to Senate

Funds Totaling $48,000,000 Are Provided; Sum for Inter-American Highway Is Eliminated

The first deficiency appropriation bill (H. R. 9976), providing a total of approximately $48,241,562 for urgent needs of the Government for the present fiscal year supplemental to the regular appropriations, was passed by the House Feb. 21. It now goes to the Senate.

The bill is the seventh of the annual supply bills to be passed by the House, sent over to the Senate, and blocked there by the tariff revision bill (H. R. 2667).

Approximately it provides $15,250,000 for the Veterans' Bureau; $6,500,000 for the Department of Commerce, of which $5,740,000 is for the fifteenth decennial census that starts Apr. 1; $2,700,000 for the Department of the Interior, of which $1,100,000 is for support of Indian schools; Department of Justice, $2,033,444, of which $1,161,000 is for penal institutions; $2,184,000 is for the Navy Department, of which $1,144,000 is for preservation and completion of vessels; $2,877,000 is for the Treasury, of which $1,342,000 is for the Coast Guard; $2,738,000 is for the War Department, of which $1,844,049 is for national soldiers' homes; $1,052,000 is for legislative pay, Capitol improvements, etc.

There are smaller items for various other agencies including $556,500 for the Department of Labor, mostly for the immigration and naturalization services. (A summary of the bill as reported was published in The United States Daily of Feb. 18.)

Policy in Production Of Helium Explained

In the course of the debate on the bill, Representative Wood (Rep.), of La Fayette, Ind., in charge of the measure as chairman of the Committee on Appropriations, explained the purpose of the Government with respect to helium. Representative Stafford (Rep.), of Milwaukee, Wis., suggested that Congress in the bill is proposing to appropriate a large amount for increased activities as to helium. The bill carries $180,000 for the Bureau of Mines for helium production and conservation for the fiscal years 1930 and 1931, while there is also pending before the House Appropriations subcommittee on naval affairs a proposal for helium production needed for naval aircraft as explained in The United States Daily of Feb. 20.

"The idea of the Committee on Appropriations," Mr. Wood told the House, "following what we believe to be the policy under the basic law, is to conserve helium for the future use of the United States by producing its own helium and having its own reserves. It is not as rare as it was supposed to be. The United States Government is now practically the only user of helium, all the other purchasers do not amount to much, and in view of the possible exigencies of the future, the Government has entered upon the policy of producing its own helium. This amount is to pay the purchase price for some land now under contract.

"So that we commit the Government to the policy of not seeking to purchase helium from private concerns?" asked Mr. Stafford.

"The Government has a sufficient supply of its own, and is producing it much more cheaply than private concerns," Mr. Wood replied.

"The gentleman from Ohio (Mr. Seiberling) made an appeal, showing that while the Government's price is less, it does not take into consideration anything for overhead or investment," Mr. Stafford said.

Price Including Overhead Is Declared to Be Less

"That is a matter of dispute," Mr. Wood replied, "even with the overhead the Government officials say we produce it at a less cost than private concerns."

Many other items of the bill were explained to the House, relating to irrigation, Forest Service, and a variety of subjects of governmental maintenance. Among other things the bill carries $3,266,752 for payment of judgments by United States courts and claims audited by the General Accounting Office.

In connection with the Department of State, Mr. Wood said an estimate of $50,000 for an inter-American highway has been eliminated because "it would be well to wait until a large number of governments involved in such a survey indicate they are interested."

"Our experience in building international highways has not been a success," he said. "We built one on the dividing line between Arizona and Mexico, with the understanding they would build one of the same width on their side. There is a fence running through the center of it. We have built the road on our side but they have not done a single thing on their side and they use the one on the American side at our expense."

The total of $48,241,562.73 carried in the bill is an increase of $63,708 added by the House after the reading of the bill for amendments began. Of this increase, $55,000 is for construction work on the Fort Peck, Montana, Indian irrigation project.

Parent Bank in Arkansas Liable for Debt of Branch

State of Arkansas:
Little Rock, Feb. 21.

Attempt to escape liability to creditors of the Bank of Smackover on grounds that the latter was in fact a branch of the Ouachita Valley bank at Camden, and as such unlawful, has been forbidden by the Arkansas Supreme Court in affirming a decree of the Ouachita Chancery Court, holding the latter bank liable for the obligations incurred by the Bank of Smackover.

A similar decree in reference to the bank of Louann was reversed on grounds that W. W. Brown, president, and C. W. Tamsey, vice president of the Ouachita Valley bank, acted beyond their authority and without knowledge of the board of directors in guaranteeing obligations of the Louann institution.

The supreme court held that while the bank of Smackover was actually not a branch of the Ouachita Valley bank, it was nevertheless an organization of the latter bank with an interlocking directorate controlling the policies of both institutions. As such the court held that the Camden bank could not do indirectly what it was forbidden to do by law, organize the bank of Smackover as a branch bank.

Both the Smackover and the Louann banks closed in 1928 and were taken in charge by the State banking department, after the Ouachita Valley bank became insolvent and was placed in charge of the State banking department.

Receipts and Expenditures For Florida Are Compared

State of Florida:
Tallahassee, Feb. 21.

Receipts from all sources for purposes of State government have risen from less than $1,000,000 in 1899 to more than $33,000,000 in 1929, figures obtained from State Comptroller Ernest Amos at the request of Governor Doyle E. Carlton show.

Expenditures have increased in like manner. In 1899 the entire expenditures for all State purposes amounted to $867,785.86—receipts for the year were about $1,000 more, $868,830.20. In 1929 the State expended a total of $32,044,101.82 while receipts aggregated $33,001,289.14.

Total assessed valuations have jumped from a little over $93,000,000 in 1899 to more than $613,000,000 in 1929, the big increase being shown in real estate valuations.

In 1899 real estate was valued at $59,177,137. Personal property was assessed at $15,338,355. Railroad and telegraphic valuations amounted to $19,111,862. In 1929 real estate assessments totaled $470,191,481; personal property had risen to $70,182,332, and railroad and communication lines were valued at $73,346,493.

Increased Revenue Derived From Georgia Tobacco Tax

State of Georgia:
Atlanta, Feb. 21.

Revenue from the State tax on cigars and cigarettes for the period from Jan. 15 to Feb. 15 showed an increase of approximately $26,000 over the corresponding period of 1929, according to R. Eugene Matheson, State revenue commissioner.

Collections were $90,649.63 as compared with $64,872.74 for the corresponding period last year.

According to the commissioner, the "teeth" put into the tobacco tax act by the 1929 legislature is making it more difficult to "bootleg" cigars and cigarettes without paying the stamp tax of 10 per cent of the value of the product. Agents of the revenue department are finding it easier to check up on stocks of retail dealers, he said, since the law as amended provides for confiscation of cigars and cigarettes found without stamps 48 hours after having entered the possession of retail distributors. All revenue from the tobacco tax goes to pay Confederate pensions.

Bills Introduced

Commonwealth of Virginia

H. 206. Mr. Coleman. To provide for the creation of sanitary districts in any county adjacent to a city having 30,000 population or more; to prescribe powers and duties as to acquisition and operation of public utilities; to provide for the issuance of bonds; Counties, Cities and Towns.

Commonwealth of Kentucky

S. 348. Mr. Gaines. To strengthen the present law empowering the railroad commission to fix rates; Public Utilities.

H. 558. Mr. Douthitt. To strengthen the present law empowering the railroad commission to fix rates; Public Utilities.

H. 557. Mr. Myers. To require that every street car operated in cities of the first class shall be operated by at least two men; Kentucky Statutes.

(Change in Status)

S. 166. Adding fifth and sixth-class cities to those authorized to acquire waterworks. Passed by senate.

Foreign Exchange

New York, Feb. 21.—The Federal Reserve Bank of New York today certified to the Secretary of the Treasury the following:

In pursuance of the provisions of section 522 of the tariff act of 1922, dealing with the conversion of foreign currency for the purpose of the assessment and collection of duties upon merchandise imported into the United States, we have ascertained and hereby certify to you that the buying rates in the New York market at noon today for cable transfers payable in the foreign currencies are as shown below:

Austria (schilling)	14.0632
Belgium (belga)	13.9250
Bulgaria (lev)	.7215
Czechoslovakia (krone)	2.9597
Denmark (krone)	26.7603
England (pound)	486.1193
Finland (markka)	2.5165
France (franc)	3.9109
Germany (reichsmark)	23.8661
Greece (drachma)	1.2959
Hungary (pengo)	17.4737
Italy (lira)	5.2347
Netherlands (guilder)	40.0878
Norway (krone)	26.7277
Poland (zloty)	11.1915
Portugal (escudo)	4.4945
Rumania (leu)	.5946
Spain (peseta)	12.3197
Sweden (krona)	26.8180
Switzerland (franc)	19.2901
Yugoslavia (dinar)	1.7596
Honk Kong (dollar)	38.0446
China (Shanghai tael)	47.9553
China (Mexican dollar)	34.4062
China (Yuan dollar)	34.1666
India (rupee)	36.1646
Japan (yen)	49.1481
Singapore (dollar)	55.9875
Canada (dollar)	99.4965
Cuba (peso)	100.0250
Mexico (peso)	47.5850
Argentina (peso, gold)	85.5430
Brazil (milreis)	11.1215
Chile (peso)	12.0321
Uruguay (peso)	87.9852
Colombia (peso)	96.3900
Bar silver	43.2500

Colorado Insurance Firm Files Briefs in Illinois Suit

State of Illinois:
Springfield, Feb. 21.

The mandamus suit of the Mountain States Life Insurance Company of Denver, Colo., against Director Leo H. Lowe, of the Illinois department of trade and commerce, seeking to compel him to license the firm to do business in Illinois, was submitted on briefs to the supreme court Feb. 18. A decision likely will be handed down at a later term.

The questions involved are whether an insurance company can come into Illinois and do business when it has no par value shares in its capital structure and the State statutes authorize insurance companies to be organized only with par value shares of not less than $25 each; and whether a foreign life insurance corporation can qualify to do an accident and health business in Illinois without qualifying as a life insurance company.

The Colorado firm seeks to reinsure the Great American Casualty Company, of Chicago, which ceased operating last Fall.

Mr. Mellon Opposes Bill Against Poisoning Alcohol

[Continued from Page 1.]

not define nontoxic or nonpoisonous products. Consequently, every denaturant selected by the Bureau, if the bill become law, might be the subject of controversy or litigation.

Referring to the part of the bill which provides that all denatured alcohol must contain traces of certain enumerated compounds, you are informed that there are thousands of preparations and scores of processes requiring denatured alcohol which could not use alcohol denatured with the compounds enumerated.

Would Penalize Permittees

If this bill became law, the result would be that hundreds of permittees now manufacturing legitimate products from denatured alcohol would not be able to secure denatured alcohol suitable for their products.

For example, the cosmetic trade would be practically destroyed since it is obvious that that industry cannot use alcohol denatured with the odorous and disagreeable products required in the proposed bill. Moreover, the denaturants proposed in the bill would not protect alcohol from diversion.

In view of the above, it is respectfully recommended that the bill do not pass.

Proposal to Cut Double Taxation Is Introduced

[Continued from Page 1.]

United States without regard to the residence of the person deriving such income; and that all other income derived by an individual residing in a foreign country or by a corporation organized in a foreign country shall be exempt from taxation by the United States if it is determined that such foreign country grants an equivalent exemption in the case of residents of the United States and corporations organized in the United States.

The bill also provides for an exemption, on condition of reciprocity, of earnings from the operation of foreign aircraft similar to the exemption now accorded for shipping.

The primary purposes of the bill are: (1) To transfer to other countries a part of the burden of relief now borne by the United States through the provisions of the revenue act of 1928 for crediting foreign taxes against the Federal income tax; (2) to free residents and domestic corporations from heavier rates of taxation in foreign countries in respect of interest, dividends, and certain other less important items of income through an offer of reciprocal exemption; and (3) to secure for United States citizens and corporations various advantages similar to those which a number of important European governments have granted their respective taxpayers in reciprocal understandings.

Earnings Are Reported For Pullman Company

Earnings of the Pullman Company, as reported to the Interstate Commerce Commission, were announced Feb. 21 by the Commission as follows:

Earnings	1929	1928
December gross	$6,507,403	$6,528,651
Net after taxes	686,323	1,178,059
Net oper. income	459,564	1,039,594
Twelve mos. gross	82,383,772	80,846,044
Net after taxes	12,893,602	14,196,513
Net oper. income	9,185,199	10,938,059

United States Treasury Statement

Comparative Analysis of Receipts and Expenditures at the Close of Business Feb. 19; Made Public Feb. 21, 1930

Receipts	This month	Corresponding period last year	Fiscal year 1930	Corresponding period fiscal year 1929
Customs	$22,829,017.23	$32,835,865.39	$366,320,791.31	$380,163,552.75
Income tax	18,036,228.35	21,091,837.48	1,232,487,761.02	1,069,026,641.70
Misc. internal revenue	30,256,426.80	29,595,506.67	402,325,660.91	384,662,157.37
Foreign obligations—				
Principal	.....	.....	40,383,179.63	28,562,640.00
Interest	.....	10,000,000.00	80,520,597.15	90,252,451.22
Railroad securities	1,141,814.06	259,078.93	4,424,370.40	5,952,017.36
All others	319,917.43	302,737.50	2,464,004.00	2,030,557.74
Trust fund receipts (reappropriated for investment)	2,876,610.86	1,848,424.33	26,975,165.73	35,502,590.58
Proceeds sale of surplus property	611,323.81	1,060,754.07	5,478,212.44	6,309,558.75
Panama Canal tolls, etc.	1,348,126.71	1,235,845.00	18,483,891.43	17,681,915.58
Other miscellaneous	8,474,322.59	7,876,710.47	134,264,970.38	117,490,897.75
Total ordinary	$85,893,787.84	$106,106,759.84	$2,314,628,604.40	$2,137,634,980.80
Excess of expenditures	$88,889,030.48	$39,888,364.83	$193,400,329.06	$416,070,280.14
Expenditures				
General expenditures	$139,485,943.70	$117,002,732.54	$1,435,244,558.57	$1,335,869,977.76
*Interest on public debt	2,761,910.25	2,368,306.51	365,763,286.69	373,076,657.62
Refund customs	918,513.33	950,520.54	12,870,590.00	13,617,307.21
Refund internal revenue	3,580,858.83	11,656,238.80	67,405,531.18	135,325,408.37
Postal deficiency	10,000,000.00	10,000,000.00	45,000,000.00	40,000,000.00
Panama Canal	486,551.64	376,309.92	8,096,608.40	6,350,557.55
Op. in spec. accounts—				
Railroads	†1,463.64	96,655.65	†3,015,446.16	†735,655.89
War Finance Corp.	†2,616.39	†21,391.75	†63,791.18	†492,949.15
Shipping Board	†728,600.81	†310,371.77	15,774,807.57	13,574,252.83
Alien property funds	†1,483,219.07	†968,975.37	†344,903.42	†703,418.62
Adj. service cert. fund	†131,232.17	93,067.83	111,817,587.57	112,155,328.04
Civil-service ret'm't fund	†17,438.24	†34,832.56	20,325,953.13	19,844,021.61
Invest. of trust funds—				
Govt. life insurance	2,852,992.86	1,848,424.33	26,291,843.51	34,764,781.26
D. C. teachers' retirem't	23,618.00	.....	407,095.70	351,001.13
Foreign service ret'm't	.....	.....	336,582.13	326,329.08
Gen. R. R. contingent	.....	.....	276,226.52	386,808.19
Total ordinary	$157,745,818.32	$143,061,724.67	$2,106,186,530.21	$2,083,710,407.19
Sinking fund	$17,000,000.00	.....	$291,514,950.00	$369,925,800.00
Purchases and ret. from foreign repayments	.....	.....	418,000.00	18,000.00
Received from foreign governments under debt settlements	.....	.....	109,790,850.00	97,075,350.00
Rec. for estate taxes	.....	.....	58,100.00	.....
Purchases and retirements from franchise tax receipts (Federal reserve and Federal intermediate credit banks)	.....	2,933,400.00	.....	2,933,400.00
Forfeitures, gifts, etc.	37,000.00	.....	60,503.25	42,303.75
Total	$17,037,000.00	$2,933,400.00	$401,842,403.25	$469,994,853.75
Total expenditures	$174,782,818.32	$145,995,124.67	$2,508,028,933.46	$2,553,705,260.94

Receipts and expenditures for June reaching the Treasury in July are included.

*The figures for the month include $38,385.56 and for the fiscal year 1930 to date $348,286.30 accrued discount on war-savings certificates of matured series, and for the corresponding periods last year the figures include $44,463 and $524,265.93, respectively.

†Excess of credits (deduct).

Tax Levied Upon Stockholders of Bank In Kansas Is Held to Be Discriminatory

State Supreme Court Clarifies Opinion Holding Intangible Tax Statute to Be Constitutional

The opinion of the Supreme Court of Kansas upholding the constitutionality of the State intangible tax law, publication of which was begun in the issue of Feb. 19, is continued as follows:

Applying this act with its provisos to the facts in the case at bar, we have the plaintiff and his fellow stockholders taxed at the rate of $3.50 per hundred dollars on money and credits, while their neighbors in the same township or ward are taxed at the rate of 50 cents per hundred dollars on the money and credits they possess. In this situation there is only one conclusion that can be reached, which is that such is not a uniform and equal rate of assessment and taxation and is not uniform as to class, as required by our constitution.

Chapter Was Declared To Be Unconstitutional

In our former opinion we found chapter 326 of the Laws of 1927 unconstitutional and also that there was unjust discrimination between the stockholders of State banks and others in the taxing system prescribed by that chapter and others under which the taxes were imposed, and concluded that the plaintiff and his fellow stockholders should not be required to pay taxes at the general property tax rate, but should be allowed the benefit of the intangible rate.

There may have appeared to have been an element of inconsistency in directing the payment to be made on the basis of a law held to be unconstitutional, but there was both reason and precedent for it. Where there is found to be a discrimination, there are only two ways to remedy it; one is by bringing those taxed on the lower rate up to the higher, which was not possible in this case, and the other is by bringing those taxed on the higher rate down to the lower on which others have been paying, even if that lower rate should in itself be invalid. All parties agreed on a liability of the plaintiff up to the intangible point, but differed beyond that point. The plaintiff offered and tendered his taxes to that amount which was found to make his uniform with that of others, and that much he should pay because he had offered to do so and others had done so. In the case of Bank of Garnett v. Ferris, 55 Kan. 120, 39 Pac. 1042, it was held:

"If the parties had paid that portion of the tax about which there was no question and such part of the remainder as could be readily ascertained to be a just tax upon a fair valuation, they would have been entitled to an injunction to prevent the collection of the illegal excess." (p. 123.)

In the case of Bank v. Lyon County, 83 Kan. 376, 111 Pac. 496, two national banks brought an action to enjoin and restrain the county officers from collecting taxes from them based on an assessment on the basis of 40 per cent of the value of their property while all the real estate of the county was assessed on the basis of 25 per cent of its actual value.

The court held the banks should pay as they had offered to do, on the 25 per cent basis, notwithstanding there was no reason or justification for any such valuation to have been made in the first place.

Discrimination Stressed As Basis for Opinion

All that has been said in this opinion or was said in the former opinion concerning discrimination and lack of uniformity has been strictly and exclusively applicable to those parts of chapter 326 which are designated as provisos in section 1 of that act. When we, in the former opinion, held the act to be unconstitutional, it was specifically on account of these provisions of discrimination and inequality contained in the latter part of section 1.

It has been suggested on rehearing that this objectional part of section 1 be eliminated from the rest of the act, if it can be done without destroying the general purpose and design of the act. The whole purpose of these added provisions seems to have been to exempt and exclude certain taxpayers from the rights and privileges of the act, and the effect of the elimination of such provisions would tend to make the act applicable to taxpayers generally, which instead of destroying the purpose and intent of the act would leave the application thereof general and without these exceptions.

Exemptions to the application of an act, however appropriate in themselves, are not essential parts of the act. We think these objectional parts, which are severable and are merely exceptions to the general application of the act, can in this case be eliminated from the act and stricken out of it without in any way injuring or destroying the general design or purpose of the act, and, with such portions stricken out, we know of no good reason why the act should not be held constitutional.

We, therefore, find the provisos contained in the latter part of section 1 of chapter 326 of the Laws of 1927 to be invalid and unconstitutional and the remainder of the act, with these portions eliminated, we find to be valid and constitutional. This segregation was authorized and apparently anticipated by the legislature at the time the law was enacted, as indicated by the inclusion therein of section 11, which is as follows:

That if any section, clause, sentence, paragraph, part of provision of this act shall be found invalid by any court, it shall be conclusively presumed that this act would have been passed by the legislature without such invalid section, clause, sentence, paragraph, part or provision, and the act as a whole shall not be declared invalid by reason of the fact that one or more sections, clauses, sentences, paragraphs, parts or provisions may be found invalid by any court.

In 6 R. C. L. 121 it is stated:

It is a fundamental principle that a statute may be constitutional in one part and unconstitutional in another part, and that if the invalid part is severable from the rest the portion which is constitutional may stand while that which is unconstitutional is stricken out and rejected.

Exclusion of Provisos Previously Upheld

This court, in the case of State, ex rel., v. Hilty, 97 Kan. 91, 154 Pac. 214, has sanctioned and approved such a course in separating and excluding the objectionable and invalid parts or portions of an act and retaining the balance as constitutional.

"This invalid provision is not such an integral portion of the whole law as to be inseparable; * * * and this does not violate the legislative intent or impair the efficacy of the law." Harrod v. Latham, 77 Kan. 466, syl. paragraph 3, 95 Pac. 11. See, also, Hardy v. Kingman County, 65 Kan. 111, 68 Pac. 1078; State, ex rel., v. Howat, 107 Kan. 423, 191 Pac. 585; State v. Howat et al., 116 Kan. 412, 227 Pac. 752.

As stated in the former opinion, this decision is not intended to affect the administration of any of the other taxing laws mentioned and considered in this opinion, and to that number might properly be added chapter 327 of the Laws of 1927, known as the secured-debts act.

We have attempted to consider in this opinion all the instances of discrimination and lack of uniformity that have been brought to our attention, but we may not have commented on every such feature suggested along these lines, and we realize other instances and features in the same connection may have been entirely omitted, the discovery and development of which might in the future call for further consideration along the same general lines.

A very interesting and plausible method of proportionate valuations of the assets of banking institutions in computing the amount to be assessed and taxed to the stockholders thereof, by giving them the benefit of the intangible law, the mortgage-registration act and the secured-debt law, has been skillfully worked out and presented to the court on this rehearing, but we deem the application of such an apparently logical and generally inclusive method to be more in the nature of an administrative duty than judicial.

We conclude, as we did in the former opinion, that the plaintiff and his fellow stockholders should not be required to pay taxes at the general-property or tangible rate, but should be allowed the benefit of the intangible rate of taxation.

The writ is allowed.

The opinion of Judge Harvey, dissenting in part, will be printed in full text in the issue of Feb. 24.

Legislature Called To Consider Banking Laws in Nebraska

Amendatory Legislation on Handling and Storage of Grain Among Four Topics Scheduled for Action

[Continued from Page 1.]

the major subject of banks and banking, in that the attorney general holds that the law should be clarified and authority definitely fixed as to these matters.

Adequate Laws Urged

I have included the subject of farm storage and warehousing of grain and handling grain on public markets in this call because of the need of adequate laws in connection with the handling and financing of grain under the rules of the intermediate credit banks and in cooperation with the Federal Farm Board. Several of the States in the agricultural West have already passed adequate grain inspection and warehousing laws, which I am informed are a real aid to agriculture.

I wish to emphasize the fact that the major subject for consideration is bank legislation, and that if the members are not generally agreed as to the immediate need of warehousing legislation, or as to the provisions needed, consideration should be referred until the regular session. In any event it should not be permitted to interfere with full consideration and disposition of needed banking legislation.

Other Subjects Deferred

I have been requested to present to the legislature other important subjects for consideration, and concerning which there is no doubt as to needed legislation. However, believing that the extraordinary occasion which requires the special session is based primarily on the present bank situation, I have concluded that it would be unwise to ask the legislature to consider any other major subject at this time except amendatory laws relating to handling and storage of grain. The members of the present legislature, because of their earnest consideration of our bank problem at the last session, are unusually qualified to meet a grave bank situation which calls for a sound and just solution.

I am sure the legislature will meet the expectations of the people in dealing with this important problem in an able and expeditious manner.

Veto of Appropriation Items Tested in Nebraska Courts

State of Nebraska:
Lincoln, Feb. 21.

W. M. Elmen, a lawyer, of Lincoln, suing in the capacity of a taxpayer, was given permission Tuesday by the Supreme Court of Nebraska to file an original action in the form of an injunction suit to test the validity of Governor Weaver's veto messages cutting off $400,000 from a general appropriation bill passed by the Nebraska Legislature in April, 1929.

The suit is to test two provisions of the constitution, one authorizing the governor to veto any item in an appropriation bill and another prohibiting the governor from vetoing appropriations which exceed his budget recommendations when the appropriations have passed both houses by a three-fifths vote.

The relator alleges the appropriation bill (H. R. 280) received more than the necessary three-fifths vote but contends that each item exceeding the governor's budget recommendations should have been voted upon separately, and therefore no increases over the budget recommendations were in fact and in law made. The court is asked to restrain the State auditor from certifying the increased appropriations to the State board of taxation as a basis for taxation for the year 1930 and also asks that the board of equalization and taxation be enjoined from levying a tax to cover the increased appropriations for the fiscal year beginning July 1, 1930.

Brazil and Bolivia Lead In Total Imports of Gold

New York, N. Y.—The weekly gold statement of the Federal Reserve Bank of New York, covering the week ended Feb. 19, shows total imports of $7,495,000, of which $5,432,000 came from Brazil and $1,956,000 from Bolivia. The export total was $10,000, all of which was sent to Germany. There was no net change in the amount of gold earmarked for foreign account.

Changes in the Status of State Banks

Maryland, Minnesota, Nebraska

Maryland: George W. Page, banking commissioner, has announced:

Application received for establishment of a bank or branch at Reisterstown.

Minnesota: A. J. Veigel, banking commissioner, has announced:

Oronoco State Bank, Oronoco, taken over by Citizens State Bank of Pine Island, Pine Island.

Faribault State Bank, Faribault, charter amended changing name to Faribault State Bank & Trust Co. and providing trust company powers.

Nebraska: George W. Woods, bank commissioner, has announced:

Bank of Douglas, Douglas, closed.

The Weekly Index
Is published in every Monday issue. The page reference used is the Yearly Index Number which is consecutive beginning with March 4 of each year

The United States Daily

Authorized Statements Only Are Presented Herein, Being Published Without Comment by The United States Daily

Annual Cumulative Index
Is published in every Monday issue. The page reference used is the Yearly Index Number which is consecutive beginning with March 4 of each year

VOL. IV. NO. 300. WASHINGTON, SATURDAY, FEBRUARY 22, 1930 YEARLY INDEX PAGE 3596. TODAY'S PAGE 12.

Schools, Churches and Homes of Oklahoma

Development of Social Culture of People Has Kept Pace With Material Advancement of State, Declares Governor Holloway

By WILLIAM J. HOLLOWAY
Governor, State of Oklahoma

OKLAHOMA is a fusion of two great territories, each with its own peculiarly individual and worthy culture. Out of this fusion has come conflict of ideas, independence of thought.

This conflict of ideas has developed some outstanding men with the passing of the years. Out of the fusion of these two territories has developed a type of manhood and womanhood that is unusual for its courage, its perseverance, its independence, its idealism.

Oklahoma still is, as she originally was, the land of hope and of promise in a Nation dedicated to America's epochal experiment in democracy. Her wealth challenges the imagination; but, vast as that wealth is, and marvelously as our people have developed and exploited it, their greatest treasure and their greatest accomplishment can not be found in the chapter dealing with Oklahoma's natural resources.

The impelling motives of American life are not to be found in material gain, but in our people's effort to realize the constitutional guarantees of life, liberty and the pursuit of happiness.

Three fundamental institutions, aside from the Government itself, represent Oklahoma's true achievement:

First, the only ultimate safeguard of democracy is an adequate and free system of public education completely serving the needs of the people in the varying situations that confront them through the changes of time.

Second, there can be no substitute, either of philosophy or of institution, for the organized church as an instrument of inspired religion.

Third, the basic unit from which all social structures are built still remains the family—the home.

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Therefore, as the truest measure of the manner in which Oklahomans have exercised the stewardship of the vast and amazing material resources that are theirs to work with, let us examine what they are doing to foster their schools, to perpetuate their religious convictions, and to safeguard their homes.

Oklahoma's annual public school bill is $30,000,000. There are more than 18,000 teachers watching over the intellectual training of Oklahoma's youth. Twenty-seven colleges, public or private, afford a genuinely democratic educational opportunity on the higher level to Oklahoma's high school graduates.

Our State University has won distinction beyond the State, especially through its schools of petroleum engineering, law, and medicine, while our Agricultural and Mechanical College is one of the largest and most effective land grant colleges in the Nation. These institutions of higher learning enroll annually 55,000 young men and young women.

Oklahoma spends annually on her college program, public and private, between $7,000,000 and $10,000,000, bringing the total expenditures within the State for public education of all types to $40,000,000.

Oklahoma's educational progress, more especially in the last 10 years, has been a matter of national comment for genuine accomplishment. There is within the reach of every child, every youth, every young man or young woman, reasonable educational opportunities when compared with similar opportunities afforded by the most progressive States.

In order to protect and to equalize the opportunities of public education, there have been distributed from the State treasury during the past year nearly $2,000,000 to the weaker schools of the State, to enable them to improve the quality of their instruction, so that, as far as practicable, the child of the humblest tenant farmer shall have an educational opportunity comparable to that of the child of the richest industrial magnate in the great city.

Oklahomans have dreamed a great dream of equality of educational opportunity. Each year sees more effective steps taken toward the accomplishment of their vision.

In 1916 the number of church members of all denominations in Oklahoma totaled 424,492 persons. In 1926 church members had increased in numbers to 581,083, a gain of 156,591, or 36.88 per cent, a rate of increase three times as rapid as that for gain in population during the same period.

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Looking from the opposite point of view, Oklahoma's unchurched population in 1916 was 1,677,589, as compared with 1,761,391 in 1926, a decrease of 16,198. During the same 10 years throughout the Nation as a whole there was a net increase in the unchurched population of 4.23 per cent.

In other words, if church membership can be accepted as a measure of a people's support of organized religion—and it certainly can—Oklahoma is consistently giving greater support to organized religion in the face of waning national support.

We have in Oklahoma church buildings which will challenge the best in architecture and beauty that any other section of the Nation can display.

It is to be expected that home ownership should be an ideal finding widespread expression throughout the State.

There are in Oklahoma 91 building and loan associations, located in 62 towns, with combined assets totaling nearly $140,000,000. There has not been in the history of Oklohoma a failure of a building and loan company, nor, so far as I have been able to find, an example of a misappropriation of funds by a building and loan officer.

The greatest stabilizing force in modern economic life is home ownership. During the last six months, From Dec. 31, 1928, to June 30, 1929, combined resources of Oklahoma building and loan associations increased nearly $9,000,000 and loans on stock certificates to those desiring to establish their own homes increased nearly $1,000,000.

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Along with this increase in home ownership has come an unbelievable rise in the standard of living. The number of telephones, gas meters, electric meters and other material evidences of higher living levels has increased incredibly by leaps and bounds, taxing the resources of Oklahoma public utilties to the utmost in meeting the demand.

Only 22 years have elapsed during which Oklahoma has established a splendid and adequate public school and college system, has financed and built, furnished and maintained, homes for her people that will equal in comfort, modern facilities and in construction those of any other State in the Union.

This chapter in the history of Oklahoma is one of which we justly are proud, because no Commonwealth can long prosper where education is neglected, where religion languishes and where homes decay.

Graft and Waste of Public Funds

Irregularities of Office Holders

By LAWRENCE F. ORR
Chief Examiner, Board of Accounts, State of Indiana

WE HAVE often been told that "public office is a public trust," but we often find that the holder thereof does not regard himself as a public trustee. There are many good officers today serving the public faithfully. Our purpose is to offer the helping hand to the faithful and condemn the wrongdoer.

One of the most depressing influences today in public affairs is the man who deals with the public with a bonus to the official for taking his wares. An officer who will accept such payments once will be looking for more; and the public pays the bill for his extravagant purchases and careless, dishonest regard for the trust imposed upon him.

It is time that this "you tickle me and I'll tickle you" business between public officials and those who have business relations with them should stop.

How can we expect a decrease in crime if certain public officials charged with enforcement of the laws will accept lucre from the law violator? Partnership of officer and criminal does not tend toward reducing crime conditions.

On the other hand it increases disrespect for law and order, for he who violates the law by permission of the public through its officials cannot have much respect for that law or for the public official who thereby assists him in its violation.

You cannot stop crime until you have first shown the criminal that a public official means business, that he is faithful to his trust, will not violate his oath of office, and has a wholesome respect for the law, himself.

There is far too much commercialism as to public office today. It was never intended that such office should be a means of financial gain to the holder thereof. The high cost of obtaining public office today which prevails in many instances is one of the great drawbacks toward obtaining the right kind of men in such positions.

How can a man who is to receive a salary of say $5,000 per year afford to pay $15,000 or $20,000 by way of expenses to obtain that office? He cannot help but figure there will be a way of reimbursement; and when he so calculates, he figures against the taxpayer.

We need more good faithful public officials who will not heed the temptation of individual gain. We need men who cannot be influenced easily toward the wrong. We need men who can say "yes" and "no" as the occasion demands and not by any indecision or fear injure the public.

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Conserving Oil Resources by Operation of Unprofitable Wells

Policy Is Adopted by State of Oklahoma for Prevention of Waste Caused by Plugging after Abandonment

By W. J. ARMSTRONG
Director of Oil Conservation, State of Oklahoma

GREAT strides have been made in the last three or four years in the conservation of oil and gas through the cooperative movements of the oil operators and the State officials in Oklahoma.

In 1926, when the great Seminole oil field was threatening to demoralize the oil industry in the United States and there was an actual overproduction of crude to the point where pipe lines and other transportation facilities could not possibly handle the same, there was immediate danger of great actual and economic waste of crude oil unless something was done to remedy the situation.

The price of crude was slashed nearly one-half, but still it did not stop the waste and overproduction. It did, however, materially affect the State's income from revenue on oil and gas. It also materially affected the operators of small wells. There was set up, all over the State, a great protest from royalty owners and small producers, that they were going to be put out of business ultimately unless something was done to prevent this overproduction.

Protests were filed with the governor's office, attorney general's office and the corporation commission. The governor finally called on the attorney general and the corporation commission to use whatever power they had under the statutes of Oklahoma to prevent this waste. The statutes of Oklahoma specifically prohibits the production of oil and gas in such a manner as to constitute waste, either actual or economic waste.

Acting on the request of the governor and with the cooperation of the attorney general, the corporation commission called a public hearing to consider these protests and for the purpose of making some orders in an attempt to correct this overproduction and waste.

Up to this time, the operators had failed to come to any general agreement on ways and means of taking care of these conditions. However, when they saw that something had to be done they immediately set themselves to the task to cooperate in working out the situation.

After many conferences, definite steps were taken by the operators and orders made by the commission preventing this overproduction and waste. As a result of these conferences and orders, the industry and the State has been greatly benefited.

Through these conferences, the operators have become better acquainted with one another and also with each other's methods of operation and, with the assistance and cooperation of State officials, have successfully worked out a very delicate and intricate problem to the best interest of the public and to the industry at large.

Due to the many conferences, general meetings and public hearings held by the corporation commission and oil operators, the public in this State has been advised constantly of the efforts and sacrifices being made on the part of the producers to hold the production at such a point as to prevent an actual and economic waste and save one of our basic industries from demoralization.

In this State, we have about 250,000 barrels of daily settled production being produced from some 60,000 small wells. Some of this is being produced now at a loss. It is extremely important, not only to the owners of these wells but to the people of the State and to the Nation at large, that ways and means be worked out to continue the operation of all wells of this character in the United States and to keep them from being abandoned and plugged.

For the last several years, the operators and owners of these wells in this State have been abandoning and plugging them at an alarming rate. When these wells are once abandoned, it will probably never be profitable again to attempt to redrill and reproduce oil from these horizons. Therefore, in case of abandonment, it is an entire loss.

These small settled producing wells are the backbone of the great oil industry in this country. If the flush oil areas in our Nation are allowed to be ruthlessly drilled and operated without regard to actual and economic waste, and during this period and orgy of overproduction the small wells are all plugged, it is only a matter of a short time until the flush areas will be dissipated and we will have a shortage of that product which has now become so vital to our economic prosperity and our national defense.

It is the realization of the possibility of these conditions that has been the moving cause in the successful cooperation by the oil operators and the public officials of this State in working out agreements, rules and regulations governing these matters.

The operators in this State are to be congratulated upon their ability to work together and their willingness to sacrifice their own personal interest in a common cause which is so vitally interesting to each and every citizen of the United States. While nature has been extravagant and bountiful in storing these great natural resources within our borders, it must be conceded by all that they cannot last forever.

This product is not like the growing of grain and cotton which, in case of failure one year, can be replaced another season. Once the crude oil and gas have been extracted from the ground, it is gone and cannot be replaced.

Argument Against Necessity for Rail Consolidation

Public Will Gain Neither in Service nor Reduced Rates and Centralized Activities Will Injure Local Interests, Is Contention

By JOHN W. McCARDLE
Chairman, Public Service Commission, State of Indiana

JUST WHAT is to be gained by consolidation of the railroads of the country into a few large systems? The public is interested in railroad operation mainly from two standpoints: The adequacy of transportation, and the amount which it pays for railroad service.

No one will contend that the transportation system of the country today is not adequate for the present needs of business, and not strong enough to grow with the requirements of increased business.

In no case where the subject of consolidation has been considered by the Interstate Commerce Commission has there been any claim that the users of railroad service may expect lower rates. In some of the hearings it has been pointed out that, as a result of consolidations, economies might be effected.

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Yet any one with business experience knows that, as the size of a business unit is increased, the supervision of the responsible officers becomes more and more remote from the employe and from the customer who desires action. Supervision is weakened to the extent that any saving in operation, through consolidation, is more than offset by the increased cost of doing business, due to remote supervision.

Smaller units not only provide greater efficiency but also more satisfactory service to the patron.

There is nothing for the public to gain by the consolidation of the railroads, except improved service or lower rates. As neither of these may be expected, there seems to be no reason from the standpoint of the public why consolidations should occur.

What has the public to lose by consolidations? In my judgment the individual States have a great deal to lose by consolidating the railroads into a few large systems.

Aside from the loss of value of close contact with high officers, which is now enjoyed in the case of many railroads of the country, I think the individual States have to lose the following:

(1) The diversion of business and tax income.

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(2) Through the consolidation of repair plants and operating units, reduced payrolls, which contribute to the welfare of the State.

(3) Through the concentration of purchases of materials and supplies. With railroad headquarters in a few large centers, the reduced access of producers along the individual lines to the purchasing departments of railroads, and the reduced opportunities of the producers in the individual States to have their production share in the consumption of products by the railroads.

Citizens of the individual States have contributed very liberally in many cases to bring about the location of railroads and repair plants within their cities or States. The States themselves, through favorable legislation, have encouraged the construction of railroads, and contributed indirectly in a large money way to bring about such locations.

There is no doubt that all of these contributions were made because of the thought that the railroads helped would become important local industries, contributing to the welfare of the States and cities. There is no doubt much of this will be lost through the consolidation of units, which will certainly follow the consolidation of railroads.

Furthermore, these railroad corporations exist under charter granted by the States. The Federal law makes no provision for the incorporation of a railroad. The States have created these corporations and defined their charter powers.

It is proposed that the Federal Government, without creating such corporations, will invade the field of the States and undertake to invest these State corporations with charter powers either not provided for by the law of the States, or actually contrary to such laws.

At the moment there seem to be two main forces urging the consolidation of railroads. One is important railroad systems that seek to eliminate strong and troublesome competitors by securing control. Another is short-line railroads which hope to, and unfortunately are succeeding in, the disposal of their properties to large systems at prices not justified by any record of earnings.

These small properties, which have earned but little or nothing, are being incorporated in large railroad systems at substantial prices. The effect of it all is the public will be called upon to pay a return based on the price at which these railroads are being acquired, but which has never been justified by the earnings of the properties in the past.

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While in the individual case the amount involved is small for the country as a whole, a very large increased cost burden will be assumed, with no gain to anybody except the owners of the properties who have been able to sell them at a price far beyond their value proven by their earning power.

Through railroad consolidation the shippers will lose the advantage of the many available routes for moving traffic which they now possess. Under present conditions a shipper can route his traffic over as many different routes as can reasonably be made by the various combinations of the railroad tracks between point of origin and destination.

The only provision in the law restricting the shipper's right to through routes and rates is the provision that a carrier cannot be required without its consent to short haul itself, unless by including the full length of the carrier's line the route would be unreasonably long.

With the railroads consolidated into a few large systems it is apparent that fewer routes will be available. Many shippers who now can take advantage of many different routes, and are now being given excellent service by reason of the competition existing between these various roads, may through consolidation have only one available route.

While the law providing for the consolidation of the railroads provides that competition shall be preserved as fully as possible and wherever practicable, it is apparent that by doing away with existing and available routes competition will be absolutely destroyed for a large volume of business.

Interchange of Ideas on Farming

Value of Conferences Is Stressed

By W. G. CONLEY
Governor, State of West Virginia

WEST VIRGINIA, in spite of its 90,000 farms on which live nearly a fourth of our people, is not known as an agricultural State.

Although the annual production in agriculture in West Virginia is not exceptional, it is important, totaling more than $137,000,000 in 1928 for all crops, livestock, and dairy products. While this figure is not by any means small, it is not nearly so large as it can be and as it should be.

West Virginia can supply enough farm and dairy products to support her whole population, and efforts to take from the farms of the State a supply sufficient for the State are being constantly made. Such efforts deserve to succeed.

In other lines of human endeavor intelligent effort is being made to consolidate properties and managements, but the practical merger, in which the farmer is interested, is the pooling of ideas. Of course, the sheep growers can pool their wool and the tobacco growers their tobacco, but the products of the general farm must largely be handled individually by the producer.

Through the use of cobperative agencies, the general farmer may, to a very considerable extent, with respect at least to some of his crops, receive the same practical benefits that would accrue to him if he could merge his properties with those of his neighbors; but by and large, and in the last analysis, he must and does depend upon his own resources and resourcefulness.

The farmer who sits at home and broods over his problems is not nearly so likely to solve them as the one who gets out among other farmers and finds out how they have solved the same or similar problems. Inbreeding of ideas is just as poor a practice as inbreeding of livestock.

Refusal to exchange experiences is as foolish as the refusal to rotate crops. The mind of the man who lives to himself alone eventually must become sterile.

We must lose no opportunity to improve farm practices. Increased productivity of the individual farm and greater production of the combined farms of the State will be necessary if they are to keep pace with the progress we are making in other ways.